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ABSTRACT

Divided into six sections, the guide provides helpful information for the teacher to prepare students to attend the Orange County Outdoor School. Pre-camp responsibilities section provides pre-camp preparation checklists for the principal, teacher, parents, school nurse, and outdoor specialist; a checklist for morning departure; discipline policy for students; and an organization chart of the Outdoor School. The preparation before arrival section is designed to provide uniformity in the preparation of all students attending the Outdoor School and consistency with goals and objectives stated in the California State frameworks in science, social science, art, health, environmental education, English language arts, and physical education. The on-site curriculum section outlines effective ways of teaching in the out-of-doors while hiking on the geology trail, chapparal trail, forest trail, and riparian trail. Background information expounds on the school's geography, history, plants, rocks and minerals, insects, weather, animals and birds, and provides a glossary. Special classroom activities include pre-camp activities (student log book, friendship circle, adopt a tree, vocabulary list) and post camp activities (nature bingo, favorite trail, new feelings, sample test with answer key). Appendices provide information for parents, fund raising activities, clothing list, and forms (master roll, medical, parent permission, evaluation). (ERB)

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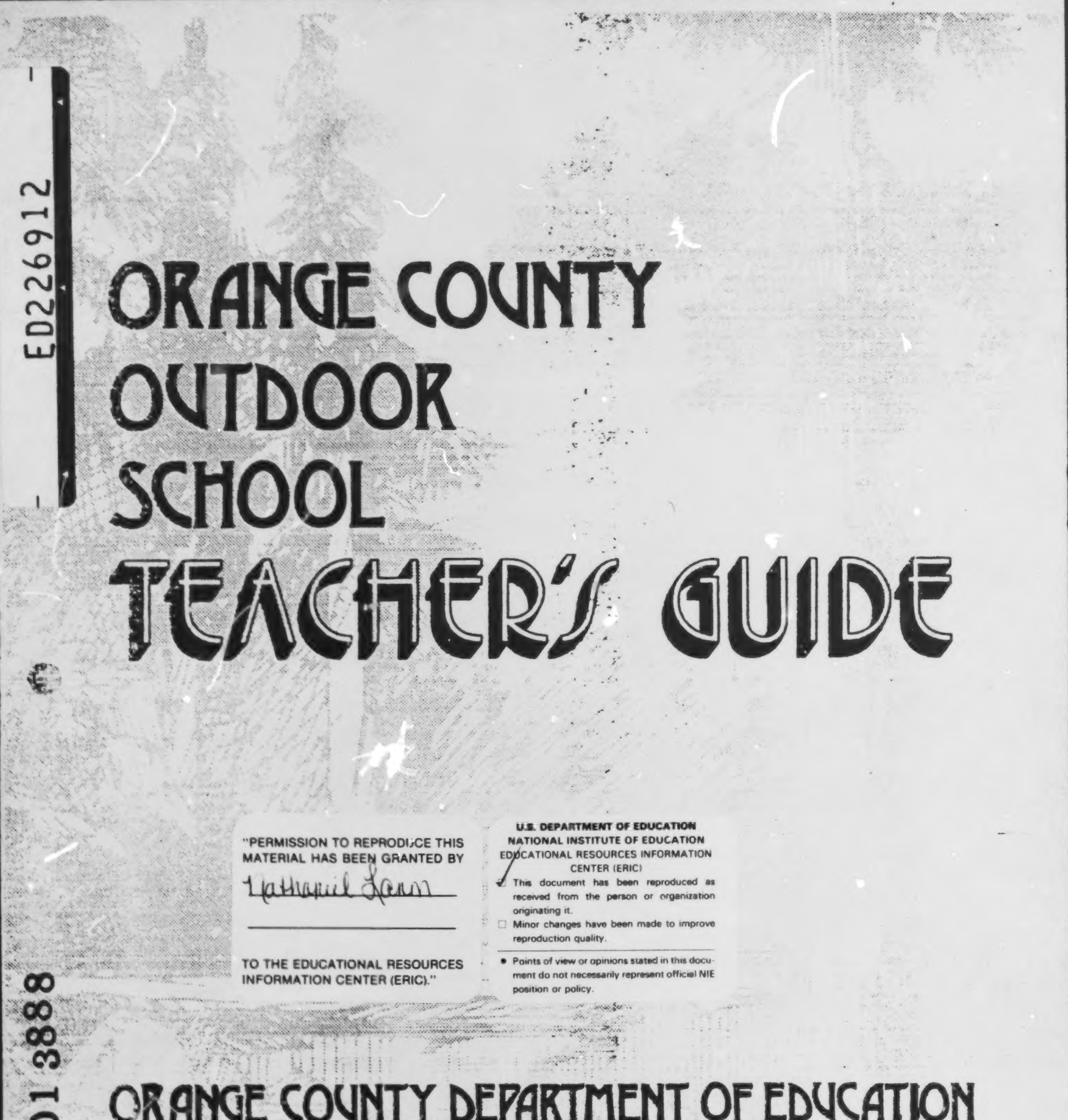

ORANGE COUNTY OUTDOOR SCHOOL TEACHER'S GUIDE

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Superintendent of Schools

Publication Date: September 1980

WELCOME. . .

to an exciting experience teaching and learning with your students at the Orange County Outdoor School!

This guide will provide you with helpful information to prepare you and your students to gain the maximum benefit from the Outdoor School Program.

PHILOSOPHY

WE BELIEVE THAT:

1. *Each student attending the Outdoor School will grow in the understanding of nature, as well as the social graces, and depart at the end of the week with a genuine concern for the natural environment.*
2. *The Outdoor School curriculum compliments and enriches the subject areas of Science, Social Science, Health, Art, Environmental Education, English, Language Arts, and Physical Education taught at the regular school.*
3. *Students will increase their appreciation for the value of our wilderness areas through learning about the interdependency of living things and their environment, the dynamics of energy, conservation of resources, cycles and systems of change in nature and multiple use of the forest.*
4. *The Outdoor School Program provides first hand experiences with the interrelationships and adaptations found in the natural environment and ways to demonstrate respect for nature through positive action.*
5. *Socially, each student will make new friends, learn proper table manners, be responsible for his/her behavior, belongings and equipment, participate in creative and recreational activities and enjoy living in small and large group settings.*
6. *Students will increase confidence in their own abilities and will demonstrate cooperation and understanding of cultural differences derived from group living.*
7. *The Outdoor School Program will develop informed citizens who will influence future legislation to conserve our natural resources and preserve the quality of the environment.*

ACKNOWLEDGMENTS

Many thanks to the group of dedicated people who contributed to the major revision of the Outdoor School materials. We will continue to strive for greater improvement in the development and growth of a program as exciting as the world of nature surrounding us!

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PRE-CAMP
PLANNING/RESPONSIBILITIES

PREPARING FOR YOUR WEEK AT THE OUTDOOR SCHOOL

For students to derive maximum educational and social benefit from the Outdoor School experience, considerable planning is necessary by the school principal, parents, and teachers. The suggestions listed below may serve as a check list for pre-camp preparation.

THE PRINCIPAL

_____ 1. Works with teacher/or teachers to make parents and community aware of plans and preparations for attending the Outdoor School, at least two months in advance if possible.

_____ 2. Makes plans for parent orientation at least one month prior to the trip.

_____ 3. Makes plans for needed fund raising activities and discusses providing camperships for needy students with P.T.A. board. (See Appendix for suggestions, page 150.)

_____ 4. Coordinates all activities involving the "local" school, the Outdoor School, and the community.

_____ 5. Arranges for staff to visit the Outdoor School if possible. (*Please notify the Outdoor School at least one week in advance so arrangements can be made.*)

_____ 6. Requests Outdoor School Specialist and/or District Coordinator for inservice for teachers and students at least 2 months prior to departure. (Materials will be provided related to the Outdoor School to prepare teachers and students with basic information prior to the trip.)

_____ 7. Attends inservice meeting with the Outdoor School Specialist and participating teachers to lend support to the consistency of pre-camp preparation for all students attending the Outdoor School.

_____ 8. Makes arrangements with classroom teachers or school secretary for the collection and handling of finances, distribution of forms (see Appendix Section) , and arranging for needs of pupils who have special health, clothing or financial problems.

_____ 9. Plans with and defines role of the School Nurse in the preparation of pupils for the Outdoor School, giving consideration to special health problems and collection of medications. Establishes procedures for taking temperatures on the morning of departure.

_____10. Calls the principal of the Outdoor School two weeks prior to departure to discuss participation of any handicapped children or those with special medical (or discipline) problems.

_____11. Arranges for bus transportation for students and use of a luggage truck if available.

_____12. Confers with participating teachers regarding on-site responsibilities, school, and/or district policies.

THE TEACHER

_____ 1. Informs students about the program at the Outdoor School and the dates of participation.

_____ 2. Sends a brochure and/or information letter to parents (Sample letter on page 149, Appendix section).

_____ 3. Invites parents to an orientation meeting one to two months before the date of participation.

_____ 4. Attends inservice program given by the Outdoor School Specialist and/or District Coordinator to receive background information and materials necessary for pre-Outdoor School preparation.

_____ 5. Works with students to establish goals for the trip.

_____ 6. Reviews basic science concepts and vocabulary related to the Outdoor School Program with the class. Plans activities to test and reinforce these concepts.

_____ 7. Discusses need for special clothing appropriate for altitude and seasonal weather requirements.

_____ 8. Makes a careful perusal of all pupil data, such as cumulative records and health cards, to become aware of any special guidance or health problems. Checks for students who are exempt from medical treatment and those requiring medication.

_____ 9. Forewarns parents and students regarding health rules for exclusion from participation.

a) Temperature of 100°.

b) Signs and symptoms of communicable disease or handicapping conditions (i.e., broken leg or broken arm)

c) Incomplete recovery from a recent illness or injury.

d) External symptoms of wheezing, coughing, elevated temperature, "runny" nose on morning of departure. (School principal, classroom teachers, or school nurse may be called upon for final evaluation of health and consent to participate of some children exhibiting external symptoms of illness.)

_____10. Makes provisions for instruction of pupils not able to attend the Outdoor School due to: health problems, parental objections, special concerns, etc.

_____11. Three weeks prior to participation, distributes Exhibit C:(Request and Release Form for a Child with a Special Medical Need),to parents of such children. The principal or teacher will inform the Outdoor School two weeks before departure date of any students with special medical needs desiring to participate. Final decision regarding participation remains with the principal of the Outdoor School program.

_____12. Two weeks prior to participation, the following forms should be grouped together and distributed to the students.

a) Confidential Information Form (Exhibit"B")

b) Clothing List

c) Parent and Physician Release for Administration of Medication

_____13. Advises students to mark name and school on all clothing and personal belongings.

_____14. Encourages students to bring cameras, favorite books, small games, stamps and stationery.

_____15. Stresses that money, food, candy, gum, radios, knives, or sharp instruments are not to be brought to the Outdoor School.

_____16. Stresses that all medications to be dispensed during Outdoor School week will be turned over to the school nurse for proper identification and packaging. No medication, whether prescribed or non-prescribed, will be in the personal possession of a student (See Policy Section, page 156, Appendix) while at the Outdoor School.

_____17. Prepares class for separation from parents and social expectations related to group and individual behavior (i.e., cabin living, dining room, and trail manners).

_____18. Provides class with appropriate safety instruction for outdoor living and compares the anticipated differences of the Outdoor School environment with that of the local school.

_____19. Organizes students into cabin groups.

_____20. Collects all health and parent permission forms.

_____21. Prepares and brings to the Outdoor School the student Cabin Assignment roster, the Master Roll sheet, and all health and parent permission forms (Exhibit"B", Exhibit"C", and the Parent Release and Physician's

Request for Administration of Medication).

____ 22. Informs students and parents of time of return on Friday (approximately 2:30 p.m.)

____ 23. Discusses appropiate clothing to be worn for hiking and out-of-door activities on the morning of departure. (Boots and rain gear should be worn, not packed, during times of inclement weather.)

THE PARENTS

____ 1. Arrange for opportunities for children to earn a portion or all of the expenses related to the Outdoor School week through individual or group fund raising activities.

____ 2. Provide or assist with obtaining the appropriate clothing for the Outdoor School week.

____ 3. Confer with the classroom teacher or nurse regarding any special problems concerning their child living away from home (i.e., special diets, health problems)

____ 4. Encourage a positive attitude towards the new learning experience.

____ 5. Complete and fill out appropriate forms.

THE SCHOOL NURSE

____ 1. Should review health records of all students participating in the Outdoor School program, and list all children on regular medication or those who may require special medication during emergency or unusual conditions (bee sting, allergic reaction, etc.)

____ 2. Should compile a list of all children with chronic illnesses or conditions and submit "Exhibit C" to school principal three weeks prior to departure. (Examples: severe allergies, cardiac conditions, asthmatics, diabetics, epileptics, etc.)

____ 3. Should establish procedure (including inservice of volunteers) for taking temperatures on the morning of departure. No parent assisting the school nurse should check the temperature of his/her child.

____ 4. Should personally assess health of children from classes where communicable diseases have recently occurred.

____ 5. On the Friday before departure, should check any children who show incomplete recovery from a recent illness or injury. Package and label all prescription and non-prescription medication. (All medication must be accompanied by a signed Administration of Medication form.) This should be completed on the Friday before, if possible.

____ 6. On the morning of departure:

  a) Collect any additional medications and forms.

  b) Supervise health check of students.

  c) Make final decisions regarding exclusion or attendance of students.

  d) Complete a "Medication Worksheet for Outdoor Education".

  e) Deliver all medication to the bus.

THE OUTDOOR SCHOOL SPECIALIST

____ 1. Provides orientation assembly at new schools for students and parents to discuss fees, facilities, and the Outdoor School program.

____ 2. Provides inservice meetings for principals and teachers to discuss administrative procedures, curriculum and instructional materials related to the Outdoor School program.

____ 3. Provides, upon request, additional services and materials needed in preparation or follow-up activities for the Outdoor School trip.

____ 4. Acts as a liason between the participating school district, the Orange County Department of Education and the Outdoor School staff.

CHECK LIST

MORNING OF DEPARTURE

Several important last minute matters generally need attention. It is the purpose of the following "count down" to remind teachers of some of the final preparations necessary before boarding the bus for the trip to the Outdoor School.

The Outdoor School Specialist and/or a staff member will be present at your school to assist you on the morning of departure if requested.

____ 1. Check parent permission forms: Teachers should check to see that all forms are returned and completed for every child attending the Outdoor School. Each form must be signed by parent(s)/guardian(s).

____ 2. Inspect Luggage: Teachers should examine all luggage and sleeping bags or bedrolls to see if they are properly marked with the child's name and school. Sleeping bags and bedrolls are to be placed in large plastic bags for protection.

____ 3. Health Check: The School nurse or a health aide will take the temperatures of all students and check for indications of poor health. The Principal will inform parents of children unable to attend the Outdoor School.

____ 4. Restrooms: After temperatures are taken, students should go to the restroom before boarding the bus.

____ 5. Bus seating plans: Teachers will discuss bus loading plan with students. Generally, students line up in pairs and are allowed to sit with friends if proper behavior is maintained. Children prone to motion sickness are encouraged to take dramamine and are seated in the front of the bus. (Teachers should take plastic "sick bags" in case they are needed.)

____ 6. Check attendance: Teachers will take roll after children board the bus. Check to see if parent permission forms, (Exhibit B) are alphabetized and cabin lists and medications with accompanying release forms are also on the bus.

____ 7. Bus standards: Bus driver will review standards of behavior with the children after they are seated.

RESPONSIBILITIES OF THE VISITING CLASSROOM TEACHER
IN THE OUTDOOR SCHOOL PROGRAM

CONTRACT:

4.0 The authorized DISTRICT representative for each class at the OUTDOOR SCHOOL shall be a certificated employee.

4.1 DISTRICT shall provide a certificated employee to participate in the OUTDOOR SCHOOL program with each group of approximately 30 pupils.

4.2 A certificated employee shall ride with and supervise pupils on the bus.

4.3 All certificated employees shall remain on the OUTDOOR SCHOOL site throughout the entire period of the program, unless arrangements have been made with OUTDOOR SCHOOL principal.

4.4 All participating certificated employees, in cooperation with the OUTDOOR SCHOOL staff, shall be expected to take an active role in teaching and supervision of pupils.

PREPARATION:

- Attends inservice program to receive background information and materials necessary to prepare their class.
- Works with students establishing behavioral goals and standards for the trip.
- Reviews basic science concepts and vocabulary related to the units taught at the Outdoor School with students.
- Notifies parents regarding appropriate clothing, health and medical procedures and expected academic and social learnings to be accomplished during the week at the Outdoor School.
- Organizes students into cabin groups.

ON-SITE RESPONSIBILITIES:

- Attends all scheduled meetings and evaluation sessions with the Outdoor School staff and students.
- Teaches one of the four major trail activities four scheduled times during the week; also conducts free-choice or special activities as assigned.
- Eats all meals in the dining room and assists Outdoor School staff with supervision at meal time.

- Cooperates with the Outdoor School staff with special health problems; disciplinary actions and supervision as needed.

FOLLOW-UP:

- Completes an evaluation form for teachers.
- Distributes, collects and returns all parent evaluation forms the week following participation at the Outdoor School.
- Conducts activities in the classroom after the Outdoor School week (i.e., school newspaper, displays, slide/tape show, class album, original stories, poems, journals, etc.)

DISCIPLINE POLICY FOR STUDENTS

DURING OUTDOOR SCHOOL WEEK

Responsibility for the behavior of students at the Outdoor School will be shared by the entire staff which is made up of the Outdoor School Principal, Acting Principals, Naturalists, visiting classroom teachers, Unit Leaders, and Cabin Leaders. A spirit of teamwork and cooperation between members of the Outdoor School staff and the visiting classroom teachers is stressed.

DISCIPLINE POLICY

First Infraction:	Cabin Leader counsels with student.
Second Infraction:	Cabin Leader involves Unit Leader, Naturalist, Acting Principal, or Principal in counseling process. The Principal, Acting Principal, Naturalist, or Unit Leader will take necessary action to correct the situation and will inform the classroom teacher.
Third Infraction:	Student will be counseled by the Outdoor School Acting Principal or Principal. The classroom teacher will be consulted to determine course of action. Parents and home school principal will be notified of child's behavior and disciplinary action taken.
Fourth Infraction:	Student is sent home.

THE DECISION TO RETURN A CHILD TO HIS/HER HOME IS MADE BY THE OUTDOOR SCHOOL PRINCIPAL IN COOPERATION WITH THE CHILD'S TEACHER.

NOTE: The transportation of students on days or times other than provided by the home school is the responsibility of the parent or his/her designee.

STAFF RESPONSIBILITIES

The Orange County Superintendent of Schools establishes policies, and administers the Outdoor School Program under provision of the Education Code, Chapter 4, Article 5, 8760 - 8773.

The Assistant Superintendent of Instructional Services is responsible for the instructional programs and curriculum provided by the Orange County Department of Education to the schools of Orange County.

The Director of Instructional Programs, is responsible for the over-all management of the Outdoor School Program for the Orange County Department of Education.

Outdoor School Specialist under the direction of the Director of Instructional Programs, provides inservice programs, orientation assemblies, and instructional materials to assist teachers, parents and students to prepare for the Outdoor School experience.

Outdoor School Principal under the direction of the Director of Instructional Programs administers the Outdoor School Program and supervises the staff at all times.

Certificated Acting Principals under the direction of the Outdoor School Principal teach and supervise students in various natural science activities; provide administrative, instructional and recreational leadership, plan, organize, direct and evaluate all programs for their site.

Naturalists under the direction of the Principal and the Acting Principals, develops and leads interpretive activities related to the various ecosystems.

Health Technician under the direction of the Principal provides for the health and medical needs of all participants, teachers, and staff.

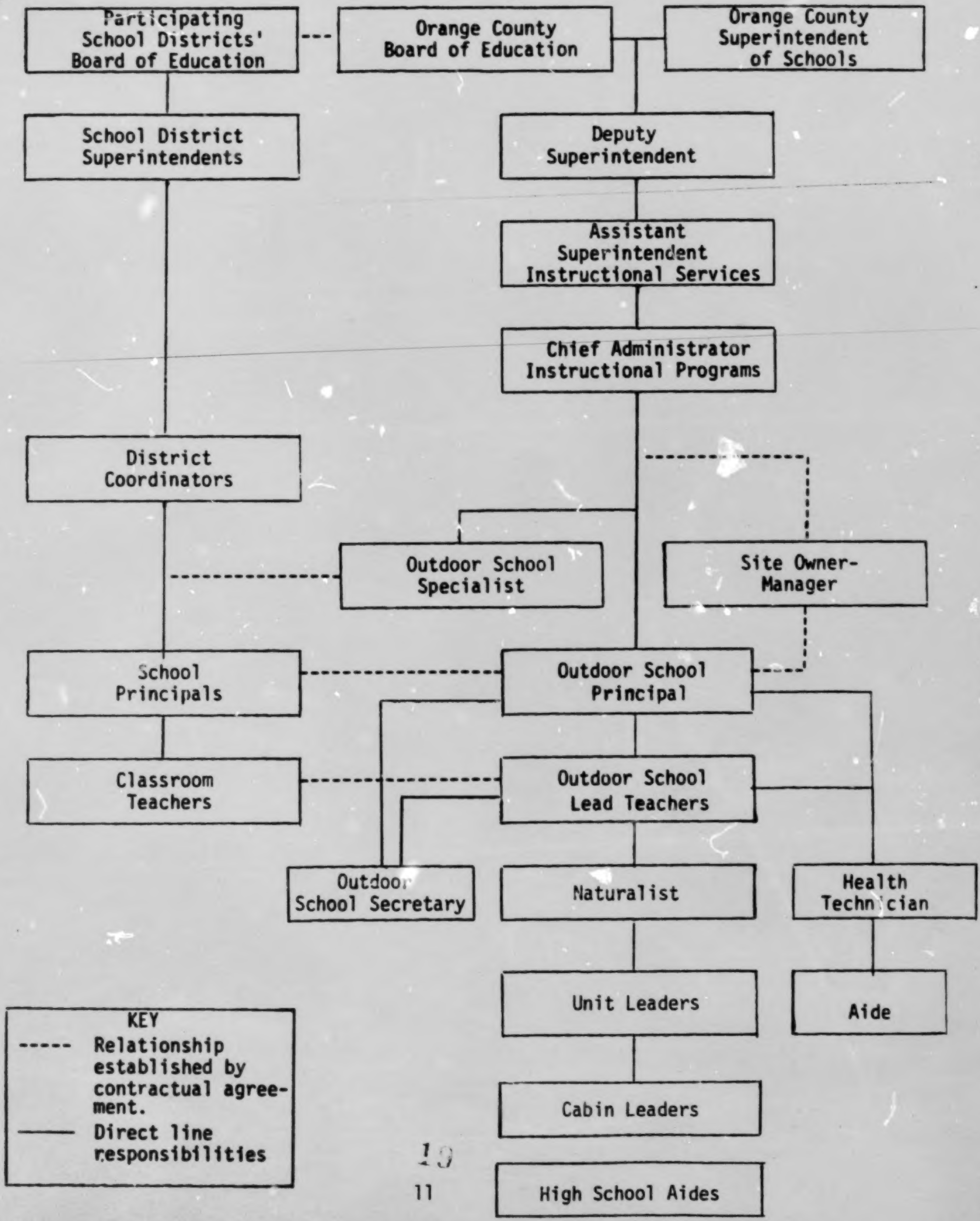
Secretary under the direction of the Principal and Acting Principals provides clerical services for the Outdoor School.

Unit Leaders under the direction of the Principal or Acting Principals supervise cabin leaders and students in various instructional, recreational, and free-choice activities. Cooperate with and assist classroom teachers with the supervision of students in all activities.

Cabin Leaders under the direction of the Acting Principals and Unit Leaders supervise students in the cabins, dining room and in various instructional and recreational activities. Cooperate with and assist classroom teachers in the supervision of students in all activities.

Cabin/Trail Aides (high school students) under the supervision of the Outdoor School staff, provide assistance with the supervision of students in cabin living, recreational and free time activities. PLEASE NOTE: These young people participate from local high schools for one week periods as part of their camp counseling class under the Regional Occupation Program. The high school cabin aide is under 18 years of age and may not assume the role of a responsible adult while on the trails.

ORANGE COUNTY OUTDOOR SCHOOL ORGANIZATION CHART


Participating School Districts' Board of Education
Orange County Board of Education
Orange County Superintendent of Schools
School District Superintendents
Deputy Superintendent
Assistant Superintendent Instructional Services
Chief Administrator Instructional Programs
District Coordinators
Outdoor School Specialist
Site Owner-Manager
School Principals
Outdoor School Principal
Classroom Teachers
Outdoor School Lead Teachers
Outdoor School Secretary
Naturalist
Health Technician
Unit Leaders
Aide
Cabin Leaders
High School Aides
KEY
----- Relationship established by contractual agreement.
—— Direct line responsibilities

PREPARATION BEFORE ARRIVAL

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OUTLINE FOR INSTRUCTION

The information in this section is designed to provide uniformity in the preparation of all students attending the Outdoor School. The materials are consistent with the goals and objectives stated in the California State frameworks in Science, Social Science, Art, Health, Environmental Education, English Language Arts, and Physical Education.

The materials are divided into three areas:

PART I - Major Concepts
PART II - Essential Vocabulary
PART III - Social Expectations

SUGGESTED TIMELINE FOR INSTRUCTION

Minimum: *3 weeks - 1 hour per day*

Example:	*Concepts*	*35 minutes*
	Vocabulary	*15 minutes*
	Social	*10 minutes*

Suggested Directions

- The numbered components under each major concept provide information for the teacher.
- *Questions printed in script are designed to stimulate discussion or activities with students.*
- The "focus" sections will assist the teacher in guiding the discussion/activity.

Alternative Approaches to Instruction

(Your own personality and creative involvement will determine the format and timeline)

- Oral discussion (large group)
- Small group "buzz sessions" to answer questions or share concerns
- Teams: Each team reports on one major concept to the class or leads the discussion. *Teacher may wish to offer a prize or incentive to the group giving the most effective presentation.*
- Research approach to define terms or questions related to components.
- Learning Centers (interdisciplinary)
- Student notebooks or journals
- Illustrations
- Pictures from magazines to illustrate examples of components
- Movies, sound/filmstrips or student activity sheets to "initiate the discussion" (see "Special Classroom Activity Section" in the Guide)

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THE ENVIRONMENT IS A DYNAMIC SYSTEM INVOLVING CONTINUOUS CHANGE AND INTERDEPENDENCY

PART I

- MAJOR CONCEPTS -

ENVIRONMENT

ENERGY

INTERDEPENDENCE

CHANGE

APPRECIATION

22

THE ENVIRONMENT PROVIDES CONDITIONS FOR THE EXISTENCE OF LIFE.

COMPONENTS

1. An environment is all of the living and non-living things that affect the life of plants and animals at any point in their life cycle.

DISCUSSION/ACTIVITY

- *What things make up your environment; (your room, home, school, community?) Describe them.*
- *What factors make up any environment?*

Focus: Environments are defined by non-living (physical) factors and living (biotic) factors.

Physical Factors (Non-Living)

Sun: provides energy
Light - amount and intensity affects life
Heat - temperature (daily and seasonal extremes) affects life

Air: medium in which and on which airborne organisms live
a supply for consumption (birds breathe air, birds fly through air)
conditions - quantity and distribution affect life, currents, moisture, nutrients
affected by - pollutants and moisture content

Water: medium for aquatic life
requirement for living things for consumption, contains nutrients
conditions - quantity and distribution, currents (transport organisms and nutrients)
affected by - salinity, pollutants, dissolved gases.

Soil: medium for plants and animals
contains nutrients (chemical compounds) which are requirements for living things
affected by - temperature, moisture, salinity, wind, currents (movement)

Biotic Factors (Living)

Presence of plants and animals
  provide sources of food
  changes mediums on which organisms live (i.e. roots absorb water from soil, plankton release oxygen into the ocean)

Relationships between plants and animals
  food chain - producers (plants), consumers (herbivores, carnivores, omnivores) and decomposers (a plant or animal breaking down or feeding upon dead material)
  competition for - food, water, shelter, territory and breeding places
  symbiosis - a special dependency between two organisms
  population density - the number of plants and/or animals in an area (affects food supply)

- *What requirements from the environment do plants, animals, and humans have in common?*

2. Different environments are defined by the amounts and kinds of non-living (physical) and living (biotic) factors.

DISCUSSION/ACTIVITY

- *What combinations of factors make up an environment that you are familiar with?*

Focus: Deserts - limited water supply, abundance of light, high temperatures
Oceans - abundance of water, high salinity, limited light
Coniferous Forests - dense growth, snow in winter, enough water to support growth of trees, higher elevations

- *How could the presence of a particular plant or animal be an indicator of a specific environment?*

Focus: Adaptations of plants and animals typify the environmental conditions in which they live (i.e. frogs have a skin which requires the moist conditions of a streamside (Riparian) environment).

3. People become aware of the environment through their learning system.

DISCUSSION/ACTIVITY

- *How do you learn about your environment?*

Focus: People discover and absorb information through the senses, store and process information in the brain, and produce information through the use of the muscles.

Senses

Sight - observe a plot of ground for evidence of life
Hearing - listen for sounds in a quiet spot in the forest
Touch - compare the texture of three leaf specimens
Smell - smell 3 different leaves and compare the various odors
Taste - chew 3 different edible substances and describe the flavors (i.e. salt, sugar, lemon, wintergreen, mint, onion)

Brain

Analyzes, applies, and synthesizes

Muscles

Reflect and demonstrate behavior

- *What things in your environments (home, school, community) make you feel happy? Why? What things make you feel sad? Why?*
- *How can you increase your enjoyment of the environment?*

Focus: Extend your limits (tolerances). Try something new - taste an edible plant, climb a mountain, explore a stream!

Take time to enjoy the simple things - watch a squirrel, listen to a bird song, examine a tiny wildflower.

LIFE IS SUSTAINED BY THE DYNAMICS OF ENERGY

COMPONENTS

1. All life forms require energy. Personal energy levels are increased through:

Movement
  Muscular development through activity
Clean air
Sufficient amount of rest
Proper diet
Involvement
  Involvement with the environment increases your potential for accomplishment
Learning
  The "need to know" is fulfilled through information gathered from the environment by the senses
Sense of well-being
  Being comfortable in your surroundings, using your talents to identify with success, giving and receiving help

DISCUSSION/ACTIVITY

- *How do you usually feel after hiking on your first day in the mountains? (Short of breath ? Why?)*

  Focus: At higher altitudes personal energy is expended adjusting to thinner air.

- *If you stay up too late and don't get enough rest, how will this affect you the next day?*

- *How will your involvement at the Outdoor School be different than what you do at your regular school?*

  Focus: Possible fears - new foods, separation from family and/or best friends
  Possible alternatives to fears - talk it out, get help from a friend, parent, teacher, Outdoor School staff member.
  Possible anger - hitting someone, foul language, gossip, destruction of property
  Possible alternatives to anger - play an active game, split wood, shovel snow, rake leaves, build and repair trails

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- *How will you get involved with your new environment at the Outdoor School?*

  Focus: Homesickness is uninvolvement with your present environment and lowers your personal energy level (feel ill, unhappy, uncomfortable; experience a low-energy level)

  Negative feelings can be changed to positive feelings through the expenditure of energy in an activity (movement). To increase your personal energy level, get involved in a positive activity.

2. Energy is the basis for all changes in the environment. Energy exists in many forms.

DISCUSSION/ACTIVITY

- *What kinds of energy are there?*

  Focus: EXAMPLES

  Chemical - found in:
    Food - photosynthesis changes radiant energy to chemical energy
    Gasoline - chemical energy changed to mechanical energy through combustion
    Batteries - chemical energy changed to electrical energy

  Electrical - commonly known as electricity
    Generators change mechanical energy to electrical energy

  Radiant
    solar (seen as light energy, felt as heat energy)
    Ultraviolet rays
    X-ray
    Gamma Ray
    Radio Waves

  Heat - released by burning and friction
    Burning changes chemical energy to heat
    Friction changes mechanical energy to heat

  Nuclear
    The sun produces energy through fusion reactions (nuclear energy is changed to radiant and heat energy)

- *What are some sources of chemical energy in your home?*

  Focus: food, natural gas, wood

- *What kind of energy is exhibited in the process of erosion?*

  Focus: mechanical (wind and water)

- *How is water used as a source of energy?*

  Focus: It turns turbines which generate electrical power. Tidal action is being investigated as a source of energy to generate power.

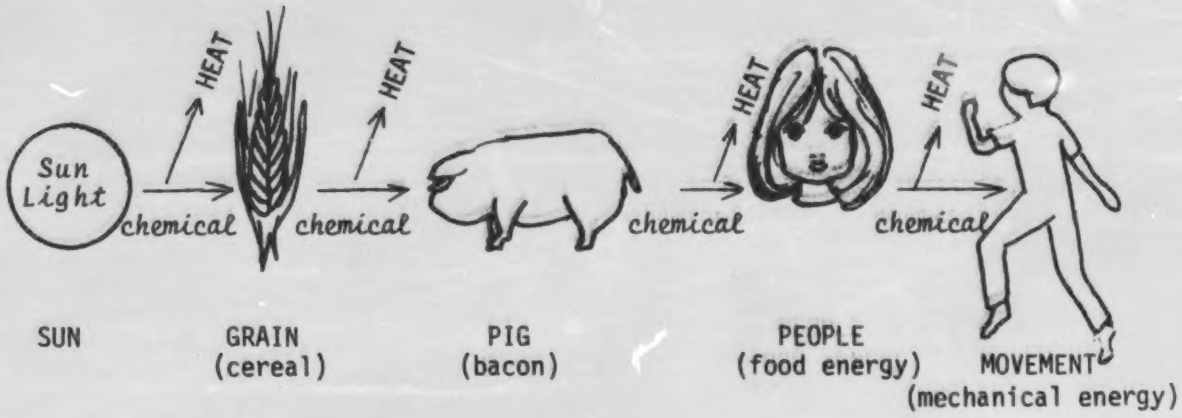
3. Energy flows and is transferred through systems and cycles in nature. Each time energy is transferred there is a loss of energy to a particular system, usually in the form of heat.

DISCUSSION/ACTIVITY

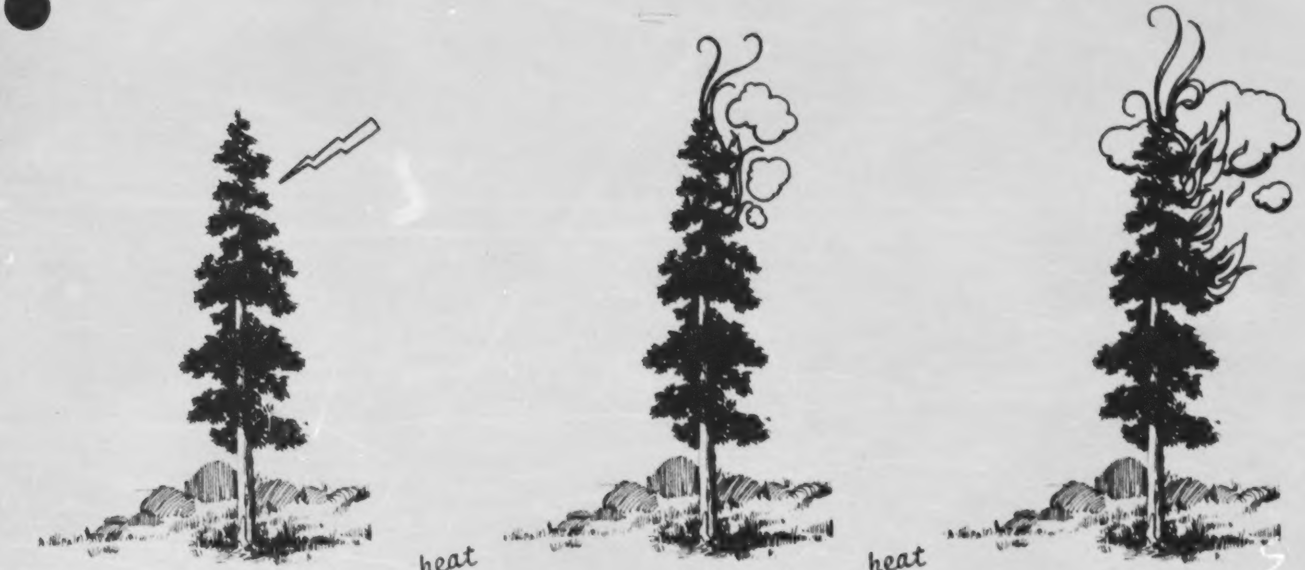
- *How do you use the sun's energy when you eat breakfast?*

  Focus: A plant (cereal) uses the sun's energy to make plant tissue. Humans eat a plant, or part of an animal that ate a plant, thus transferring chemical to mechanical energy.

FOOD CHAIN


Sun Light
HEAT
chemical
HEAT
chemical
chemical
HEAT
HEAT
chemical
SUN
GRAIN (cereal)
PIG (bacon)
PEOPLE (food energy)
MOVEMENT (mechanical energy)

- *What type of energy is transferred when lightning strikes a tree?*



ELECTRICAL (ENERGY) $\xrightarrow{\text{heat}}$ CHEMICAL (ENERGY) $\xrightarrow{\text{heat}}$ HEAT & LIGHT (ENERGY)

4. When matter is changed to energy or energy to matter different environmental effects result.

DISCUSSION/ACTIVITY

- *What personal and environmental consequences are involved when you must choose an efficient means of transportation? (walking, bicycle, bus, car)*

Focus: The bicycle is the most efficient mode of transportation in terms of energy. Less energy is expended than when walking a similar distance.

Burning gasoline powers automobiles. However, heat is produced which deteriorates the engine and many pollutants are given off.

- *What energy source has few harmful environmental effects? Why is it not widely used?*

Focus: Solar energy is not commonly used today because efficient and inexpensive means of gathering, storing, and transferring this energy have not been fully developed.

The sun is the earth's ultimate source of energy. The Indians of Mesa Verde were among the early users of passive solar energy. Today solar power is used to heat water in home swimming pools and to supplement the amount of hot water provided by water heaters in commercial and residential buildings. Other practical uses are being investigated by many research installations. Much energy can be conserved when buildings are designed to use solar energy for heating and cooling.

- *What environmental consequences would you have to consider in choosing between the construction of a nuclear plant or a coal-burning power plant?*

  Focus: People must carefully evaluate the use of energy (i.e. nuclear reactions produce electrical energy but leave radioactive wastes. A coal-burning power plant produces electical energy but pollutes the air. Strip mining to obtain coal removes top soil, promotes erosion, prevents plant growth and affects habitats and survivorship of animals.

5. Commonly known sources of chemical energy (i.e. wood, fossil fuels, coal, petroleum and gas) are limited and decreasing, but the use of energy is increasing. Therefore conservation practices and the discovery of alternate sources are critical if requirements for energy are to be met in the future.

DISCUSSION/ACTIVITY

- *Name several ways you can conserve energy in your home or in your cabin?*

  Focus: Decrease the use of appliances, electricity, air conditioning, heat and gas. Clean filters, insulate your home, close off rooms not in use, check for leaky faucets.

- *What alternative sources of energy are being investigated that you know about?*

  Focus: Solar, geothermal, fusion, wind, tidal action

ALL THINGS IN THE ENVIRONMENT ARE INTERDEPENDENT AND INTERACT WITH ONE ANOTHER

COMPONENTS

1. As people demonstrate increased understanding and respect for all forms of life, positive impact on the environment will be realized.

DISCUSSION/ACTIVITY

- *Why do you think the environment might improve as people learn to communicate and work together effectively?*

  Focus: Individuals and groups of people working together have the capability to take an active role in solving environmental problems (i.e. "Friends of the Back Bay" saved this rich Newport Beach estuary). Wholesome relationships with people will promote wholesome relationships with the environment.

- *What environmental group have you heard about and what do they want to accomplish? Why?*

- *What ways can you improve the quality of life in your neighborhood?*

  Focus: Pick up trash, care for plants, keep pets in own yard, clean up after pets, noise control during early or late hours.

- *Why should you treat all creatures humanely?*

  Focus: Respect for nature, for life (including humans). Removing one part of a food chain will affect all of the other parts.

2. Personal health is largely dependent upon the condition of one's immediate environment.

DISCUSSION/ACTIVITY

- *How does smog affect your health, your activities?*

  Focus: People cannot be involved in active sports on extremely smoggy days without danger to health.

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- *In what way(s) could stream pollution at the Outdoor School affect you?*

  Focus: People cannot drink polluted water without danger to health.

- *Why does trash have a detrimental affect on health, living creatures, and environmental beauty?*

  Focus: It is a breeding ground for pests carrying disease, can cause injuries from broken fragments and is visibly offensive.

3. The use of natural resources has an impact on the immediate and world environment.

DISCUSSION/ACTIVITY

- *What things can you do at home to conserve resources? At school?*

- *How could the impact of your actions in the natural environment affect the activities of others?*

  Focus: Soap in a stream affects fishing and kills insect life.
  Not staying on a designated trail might kill plant life and cause erosion.
  Trampling a fragile marsh or meadow could destroy it for others.
  Improper toilet habits.

- *How could an oil spill on the East Coast affect us on the West Coast?*

  Focus: (i.e. shellfish killed, price goes up, ports closed, shipping disturbed)

  An accident affecting the environment in another part of the world may also have dramatic implications to certain groups of people or to you personally.

- *How has the oil crisis affected you? Your parents? Your neighbors? Your community? Your state? Your nation?*

  Focus: Social issues can affect the demand for resources, personal and commercial utilization.

4. All forms of life are involved in a dynamic interplay with the environment expressed as "The Balance of Nature." Some forms of life will be affected more than others if the Balance of Nature is disturbed.

DISCUSSION/ACTIVITY

- *How do things in nature survive changes in the environment?*

  Focus: A species that is able to withstand or adapt to the changes will survive and reproduce. Others will leave, diminish or die.

- *Why are complex systems (i.e. a forest) often the most stable?*

  Focus: A system with many components can adjust to the removal of one species or element more easily than a system with only a few components.

- *Why is it important to protect endangered species?*

  Focus: We do not know the consequences that extinction will bring to a system. We do know that extinction of a species would reduce the number of components and might diminish the chances of the system adjusting to future change.

5. Interactions in the environment lead to new properties, groupings, or relationships that are not apparent as individual components.

DISCUSSION/ACTIVITY

- *What interactions in the environment have you observed? Describe the components.*

  Focus: Organism - Components of a living cell interact to change the properties of a cell and then cells interact to form a new living thing.

  Symbiosis - Algae and fungi interact to form lichen. (Lichen can live in areas where algae or fungi can't survive alone.)

  Habitat - All of the environmental conditions and requirements for life needed by a species.

  Community - Outdoor School is a mini-community. (Each person functions as a citizen and utilizes uniqueness and creativity to affect the total experience for all.)

  Ecosystem - Plants and animals interacting in a given environment.

  Solar System - The motion and path of celestial bodies are related to each other through gravitational attractions

- *How does the Outdoor School change as the participants change?*

  Focus: The Outdoor School staff must adjust to different levels of preparation, abilities, interests, talents, values, and attitudes of the visiting students.

THE ENVIRONMENT IS IN CONTINUOUS CHANGE.

COMPONENTS

1. Like all things found in the environment, people have a great ability to change.

DISCUSSION/ACTIVITY

- *Give some examples of how people have adapted to diverse climatic conditions and environments.*

  Focus: People can live successfully in the arctic, in the desert and in the tropics. People can free dive to 285 feet (world record) below the surface of the ocean without life support systems and can live in elevations as high as 12,000 feet.

- *What adjustments will you have to make when you go to the Outdoor School?*

  Focus: Altitude, new foods, different daily routine, new learnings.

- *What could you do before the trip to make these changes easier for you?*

  Focus: Get plenty of rest, increase physical fitness, learn new vocabulary words!

2. People have the ability to dramatically effect change in the environment.

DISCUSSION/ACTIVITY

- *What will you do to preserve the quality of the natural environment? What can we do?*

  Focus: Positive actions:

  Wildlife protection
  Preservation of wilderness
  Energy conservation
  Pollution-emission control
  Water purification

- *What have we done to destroy our natural resources?*

  Focus: Possible negative actions:

  Strip mining
  Destruction of natural estuaries
  Sewage outfalls along our coastline
  Baby seals killed for fur
  Whaling
  Pesticides

- *Why is it so important to preserve the quality of the natural environment?*

  Focus: The wilderness is the life support system for the cities. A city depends upon outside sources for food, water and oxygen.

- *What should you consider before making a change in your environment?*

  Focus: Consequences? Value Judgements, Cause and Effect, "Think before you act" (i.e. use of pesticides: snail bait protects plants but is also poisonous to household pets and babies!)

3. The environment is composed of continuously changing particles of matter. Matter is any material substance that occupies space and has weight.

DISCUSSION/ACTIVITY

- *How do changes take place in the natural environment?*

  Focus: EXAMPLES:

  Chemical - weathering, decomposing
  Physical - volcanism, earthquakes, folding, erosion
  mountain building
  Biological - natural selection process
  adaptability of a species
  insect metamorphosis

- *What conditions would promote these changes?*

  Focus: temperature, water supply, fire, terrain, soil, salinity, sources of energy, pollutants (i.e. Ponderosa Pine trees are dying from the smog. However some species of pine can survive the smog and will continue to survive through selection process and their adaptations.)

4. Nature is composed of cycles. Many changes are observed in recurring events.

DISCUSSION/ACTIVITY

- *What are some of nature's cycles?*

  Focus: Water Cycle - (Riparian)
  Soil Cycle - (Forest)
  Rock Cycle - (Geology)
  Life Cycle - (Riparian)
  Carbon Dioxide/Oxygen Cycle - (Forest)

See Trail Information for Diagrams

- *How do we know that these cycles exist?*

  Focus: Observe and record data over a period of time. Study the assembled information to determine if the events are recurring in a predictable manner.

- *Why can many changes in nature be predicted?*

  Focus: Existence of natural laws (i.e. "Law of Cause and Effect"; "Gravity")

- *What discards can you recycle? Why is recycling important for the environment?*

  Focus: Conservation/Economics:
  materials are put back into use
  new technology is developed

- Focus: Conservation/Respect for Nature:
  wise use of resources and products
  concern for beauty in the environment

APPRECIATION OF BEAUTY AND ORDER IN OUR ENVIRONMENT IS ENHANCED THROUGH FIRSTHAND EXPERIENCES.

COMPONENTS

1. Experiencing nature provides a release from the pressures of society and a return to ones' basic place "in harmony with nature."

DISCUSSION/ACTIVITY

- *What event in nature has affected you in a positive way? How did you feel?*

  Focus: A sunrise, falling snow, a waterfall.

- *When have you felt that you were part of the environment? Describe your feelings.*

  Focus: People state that they "feel better" physically and emotionally after spending time observing and being involved with the unique, awe-inspiring objects in nature: an icy tumbling stream, a delicate wild flower, subtle shadings of a desert sagebrush, a hawk in flight.

2. Experiencing the contrasts, variety, order and beauty found in all natural environments helps people to be more receptive and enthusiastic to new learnings.

DISCUSSION/ACTIVITY

- *What delicate patterns in nature have you observed (i.e. veins in a leaf, a spider's web)? Why did you choose your example?*

- *What are some other examples of repetition and order in nature?*

  Focus: Colors, textures, arrangement of leaves, branches, patterns, designs.

- *How has experiencing a new environment changed your outlook?*

  Focus: Looking at a patch of grass from "insect eye-level" and observing "life" in detail can change your feeling about your backyard. A day at the tidepools examining marine life can make studying science more interesting.

- *How has experiencing a new environment helped you to understand another point of view? (An individual or group united over an environmental or community issue.)*

Focus: Visiting Mineral King in the Sierras might help you to understand the efforts of the Sierra Club to preserve it.

3. People react differently to the objects and events in their environment.

DISCUSSION/ACTIVITY

- *How do you feel when you . . .*
  - *. . . see a tree "bursting" with blooms?*
  - *. . . experience the ground shaking as a result of an earthquake?*
  - *. . . observe a "fantastic" sunset?*
  - *. . . hear thunder rumble close to you?*
  - *. . . hear the roar of surf?*
  - *. . . see a charred hillside where a forest once stood?*
- *Why do you like to own beautiful objects or attend special events?*
- *How do people in other cultures respond to their environment in special ways?*

Focus: (i.e., the Aztecs were sun worshippers; Orientals revere nature, as seen in their gardens and art work.)

4. People are inspired through involvement with the environment and may create expressions of harmony and beauty in music, art, literature, and movement (dance, drama, sports, games)

DISCUSSION/ACTIVITY

- *How do you feel when you watch a "terrific" dancer, gymnast, or soccer player? Why?*
- *What is inspiration?*

Focus: An influence; something or someone that motivates or produces strong feelings (i.e. the strength, beauty and dignity of a majestic redwood may inspire a person to create a poem, drawing, song, etc.)

FOCUS FOR THE OUTDOOR SCHOOL WEEK

- *WHAT DO YOU HOPE TO GET OUT OF THIS WEEK AT THE OUTDOOR SCHOOL?*
- *WHAT WILL YOU DO PERSONALLY TO MAKE THE OUTDOOR SCHOOL EXPERIENCE A POSITIVE ONE FOR YOU AND ALL PARTICIPANTS?*

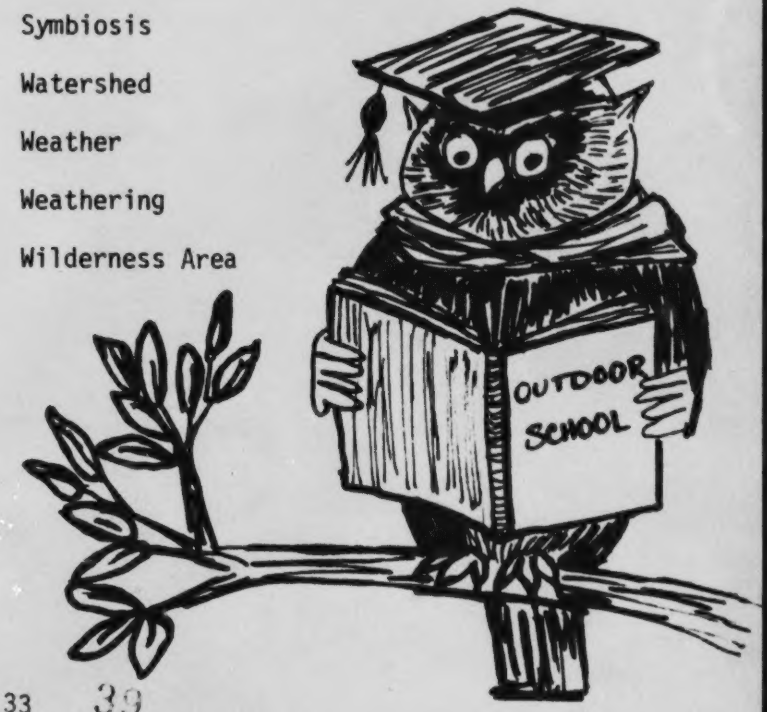
FOCUS: ENJOYMENT, NEW LEARNING, NEW FRIENDSHIPS, ENTHUSIASM, NEW OUTLOOK, ENHANCEMENT FOR ALL STUDENTS AND STAFF ATTENDING THE OUTDOOR SCHOOL

PART II

Essential Vocabulary

For definitions, refer to the Glossary, page 94)

- Adaptation
- Aquatic
- Balance of Nature
- Chaparral
- Chlorophyll
- Conservation
- Deciduous
- Decomposer
- Diurnal
- Dormant
- Ecology
- Ecosystem
- Environment
- Erosion
- Evergreen
- Food Chain
- Forest
- Geology
- Habitat
- Igneous Rocks
- Interdependence
- Metamorphic Rocks
- Metamorphosis
- Mineral
- Natural Resources
- Nocturnal
- Nutrients
- Parasite
- Photosynthesis
- Pollination
- Predator
- Prey
- Riparian
- Rock
- Sedimentary Rock
- Soil
- Symbiosis
- Watershed
- Weather
- Weathering
- Wilderness Area



PART III

Social Expectations

Please use the following topics for group discussion.

Group Behavior

- Establish personal goals for trip and discuss in class (role play if possible.)

- Show respect for all visiting classroom teachers and Outdoor School Staff (learn their names). Be good listeners.

- Be on time for your hike; be dressed appropriately for weather conditions, don't make others wait for you.

- Show respect during the flag ceremony or during the "moment of silence" in the dining room.

- Show care for Outdoor School property and equipment (careful use will give all students the opportunity to enjoy the equipment and materials provided for the school year).

- Accept the quantity of equipment (a chance to share rather than to complain).

- Be a good sport - exhibit a team spirit of cooperation (share the credit or blame).

- Be considerate of the rights and feelings of others; right to privacy, right to state ideas regarding differences in sleeping, eating and personal habits.

- Control negative emotions - don't let emotions control you! (If you cannot solve a problem alone, get help from your Cabin Leader, Teacher, or Outdoor School Staff member.)
  Anger - exercise and games are good ways to get rid of anger.
  Fear - talk over your problems with a friend or staff member to help relieve your fears.

- Share positive emotions: acceptance, cheerfulness, enthusiasm, participation.

- Assume responsibility and consequences for behavior which will affect the total experience for everyone.

Cabin Living

- Put forth a positive effort to get along with cabin mates (rumors are destructive).

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- Accept changes pleasantly - be open to compromises. Use constructive suggestions.

- Accept your share of the work cheerfully, keep your word, become more responsible; when people learn that you are dependable, you will earn more privileges.

- Be aware of the importance of a good night's sleep for all students and staff so that everyone can fully participate in all of the activities.

- Accept the limitations of the physical facilities (i.e. take short, fast showers to save hot water; keep personal belongings orderly to avoid clutter and accidents).

- Show respect for and careful use of belongings of classmates and/or staff members.

Trail Manners

- Give your attention to the Trail Teacher.

- Be courteous to members of your trail group (listen when they are talking, speak one at a time).

- Walk, don't run - take time to observe the natural environment and enjoy the activity.

- Be observant of your surroundings as you hike.

- Stay on the trail, do not cut switchbacks.

- Stay within your boundaries, do not wander away from your group - stay within sight of your group leader during an activity.

- Do not throw anything, especially rocks.

- Do not use a walking stick.

- Do not take plant samples or anything living from the environment without permission.

- When walking on a trail do not shuffle your feet (kicking dust), and be careful to hold branches so that they do not strike the person following you.

- Be courteous to other groups passing by or using the trail you are on.

- Observe safety rules when crossing the highway with your trail group.

- Leave the natural environment better than when you arrived. (Our survival depends upon our ability to minimize the negative impact on the environment.)

Dining Room

- Make clear introductions so all guests and students will feel comfortable.
- Observe the "moment of silence" politely before each meal.
- Be polite (use please and thank you). Spend at least two minutes expressing something positive about your day.
- One person talks at a time. Keep the "volume low." Converse with the people at your own table. Chew with your mouth closed.
- Put your napkin on your lap.
- Stress correct use of silverware (see sample table setting on page 35 Keep elbows off the table.
- Pass food around the table to each person. Do not reach across or in front of another person.
- Show appreciation for the cooks - take a "courtesy serving" of all foods. If you do not like something, please do not eat it.
- Don't complain about the food - express positive comments.
- Be aware of the importance of liquids and roughage in the diet for good health.

Mealtime Procedures:

1. The Outdoor School staff and visiting classroom teachers will eat all meals with the students in the dining room with the exception of one picnic lunch on the trail.
2. There is room for one adult at each table (indicated by guest sign) to provide adequate supervision throughout the dining room.
3. A Unit Leader will be in charge of the dining room set up, serving and cleanup. Each cabin group has three set ups.
4. Students will be assigned to a different table twice during the week.
5. Songs will be sung after each meal.
6. The groups setting up the dining room will remain for cleanup.
7. A staff member will dismiss the cabin groups.
8. Each table will have one student "hopper" who leaves the table to get hot food, second helpings, and dessert.

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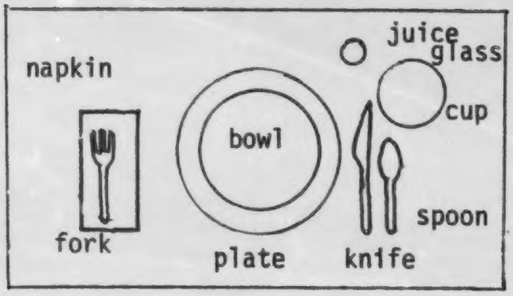
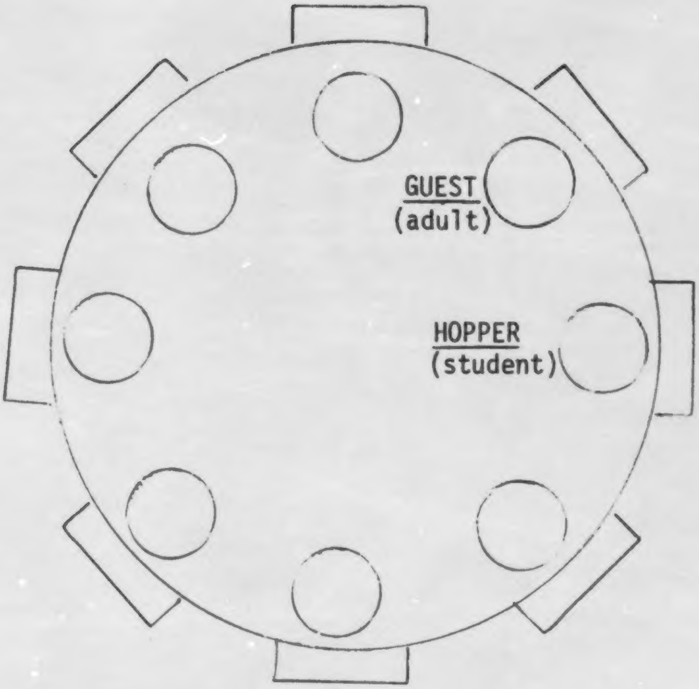
DINING ROOM

SAMPLE PLACE SETTING


juice glass
napkin
cup
bowl
spoon
fork
plate
knife


GUEST
(adult)
HOPPER
(student)

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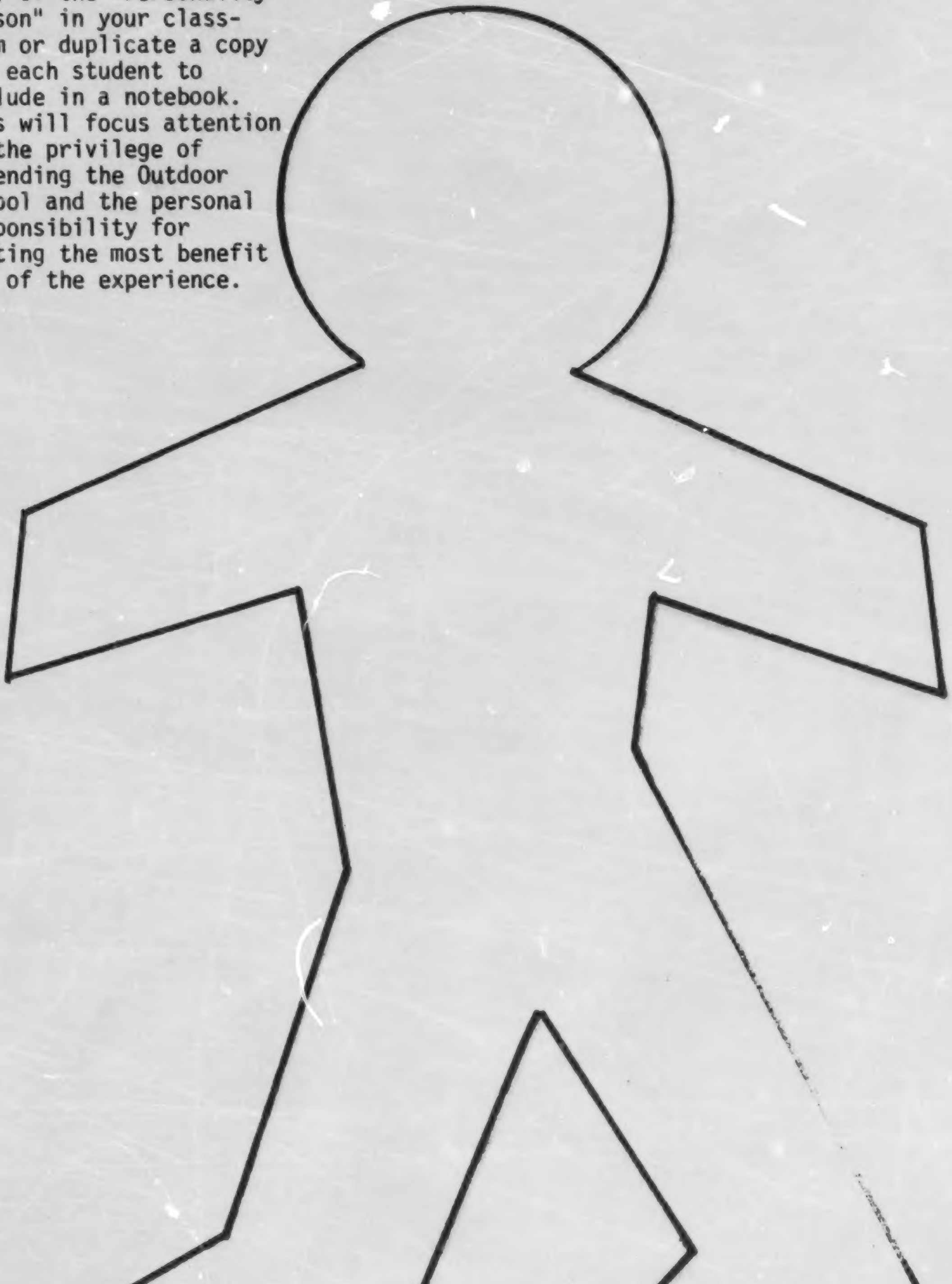
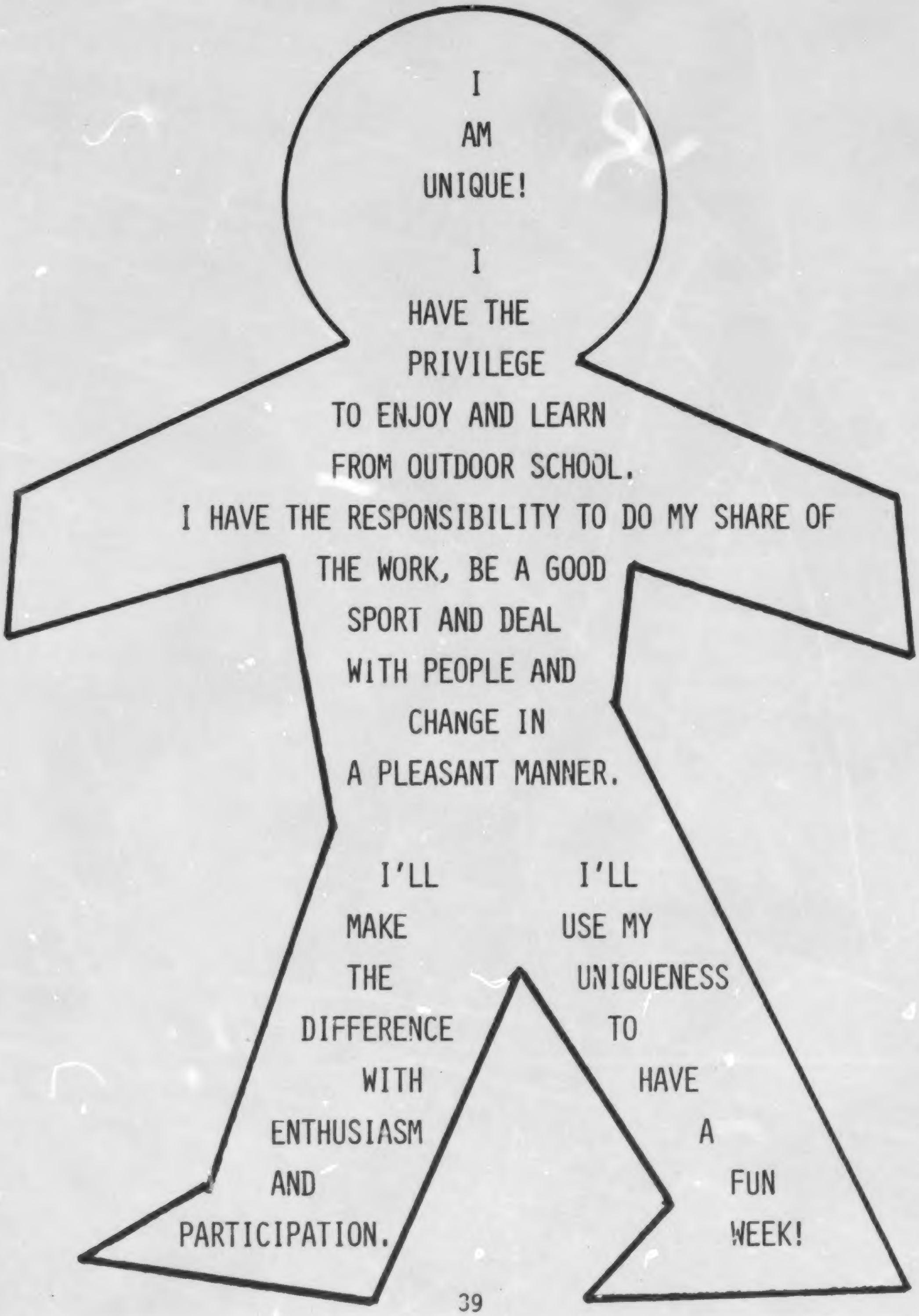
PERSONALITY PERSON

You may wish to post a copy of the "Personality Person" in your classroom or duplicate a copy for each student to include in a notebook. This will focus attention on the privilege of attending the Outdoor School and the personal responsibility for getting the most benefit out of the experience.



FOR A GREAT OUTDOOR SCHOOL WEEK
REMEMBER:



I
AM
UNIQUE!

I
HAVE THE
PRIVILEGE
TO ENJOY AND LEARN
FROM OUTDOOR SCHOOL.
I HAVE THE RESPONSIBILITY TO DO MY SHARE OF
THE WORK, BE A GOOD
SPORT AND DEAL
WITH PEOPLE AND
CHANGE IN
A PLEASANT MANNER.

I'LL
MAKE
THE
DIFFERENCE
WITH
ENTHUSIASM
AND
PARTICIPATION.

I'LL
USE MY
UNIQUENESS
TO
HAVE
A
FUN
WEEK!

OUTDOOR SCHOOL

"PERSONALITY PERSON"

PURPOSE: To increase positive communication between participants and to publicly identify and emphasize strengths of each student.

Teacher

Transfer the outline of the figure to pieces of cardboard for use as patterns.

Students

Each class member may trace the outline of one or more figures on sheets of 8½ x 11 construction paper.

Options

Students may write 3 or more describing words or statements about themselves that others might not be aware of on one of the figures (classmates may guess the identity of the person).

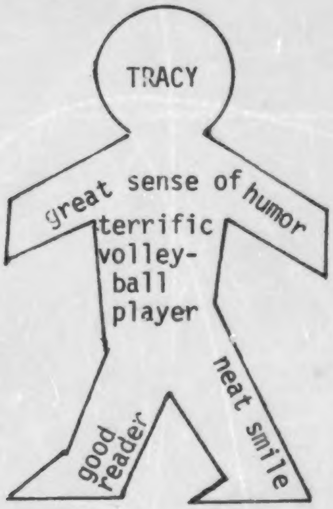
-OR-

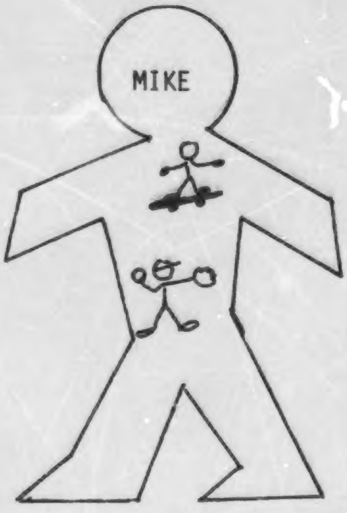
The "Personality Person" belonging to each student can be passed around the class and other students may write compliments on it.

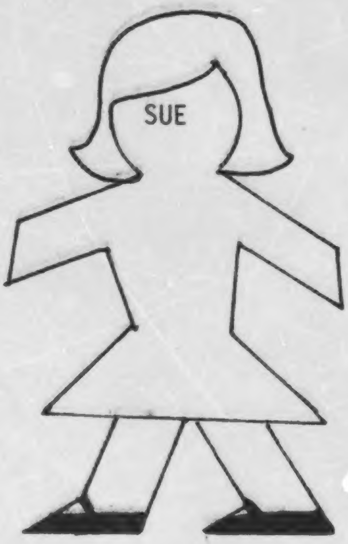
-OR-

Students may select the name of another student and then "decorate" the figure for that person (i.e. adjectives, a collage of pictures relating to special interests or activities, fabric for clothes, etc.).

EXAMPLES:







"Personality People" may be displayed around the room prior to the trip and/or sent to another school that will also be on the site the same week. Classes may wish to correspond before or after the Outdoor School week to increase communication between participants.

ON-SITE
CURRICULUM

EFFECTIVE TEACHING
IN THE
OUT-OF-DOORS

Introduction:

Introduce yourself and the name of the school you are from. Encourage the students to introduce themselves and to learn the names of other members in the trail group. Use the children's names often during the times allowed for discussion.

Introduce the Trail: "Set the Scene"

- Let the students know where they are going, what the major learnings will be and what they can expect to see while on the trail (animals, reptiles, birds, plants).
- Emphasize that this is their one opportunity during the week to enjoy this activity -- so all senses should be used to fully experience the area.

Define Rules

Students will:

1. Stay on the trail (do not cut switchbacks).
2. Remain quiet when instructor is talking.
3. Walk, not run.
4. Stay with the group.
5. Not take plants or anything living without permission.
6. Not throw rocks.
7. Not use walking sticks.
8. Observe safety rules when crossing the highway.
9. Not litter.
10. Use good manners -- be considerate of others.

Getting Started

- Move out rapidly to the first stop. Students are always eager to get started. A delay or a long introduction can cause a drop in enthusiasm.

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Teaching Techniques

- Gather the group around you at each stop so that everyone can see and hear.
- Space your stops and keep them short. A group will lose interest if the stops are too long or too close together unless an activity or experiment is conducted which involves the entire group.
- Speak clearly and loudly as you have competition from other sounds in nature!
- Encourage questions and discovery. Only the students allowed to be involved with the learning, will retain information and enjoy the experience. Take advantage of the contrasts and stark differences in nature to reinforce your facts. Practically everything they see can be related to their own experience.
- Prepare for surprises - An animal may appear or an unexpected event may occur that will distract the group. Use these occurrences to enhance your teaching and incorporate the events into your lesson.
- Conclude the trail with a time for a review of the major learnings and closure on "a positive note."

SUGGESTED QUESTIONING TECHNIQUES

Thoughtful questions will produce a variety of reponses from your students beyound the level of "one or two word recall." Try to gear your questions so that all members of the group will be able to share information or participate in an activity.

For example:

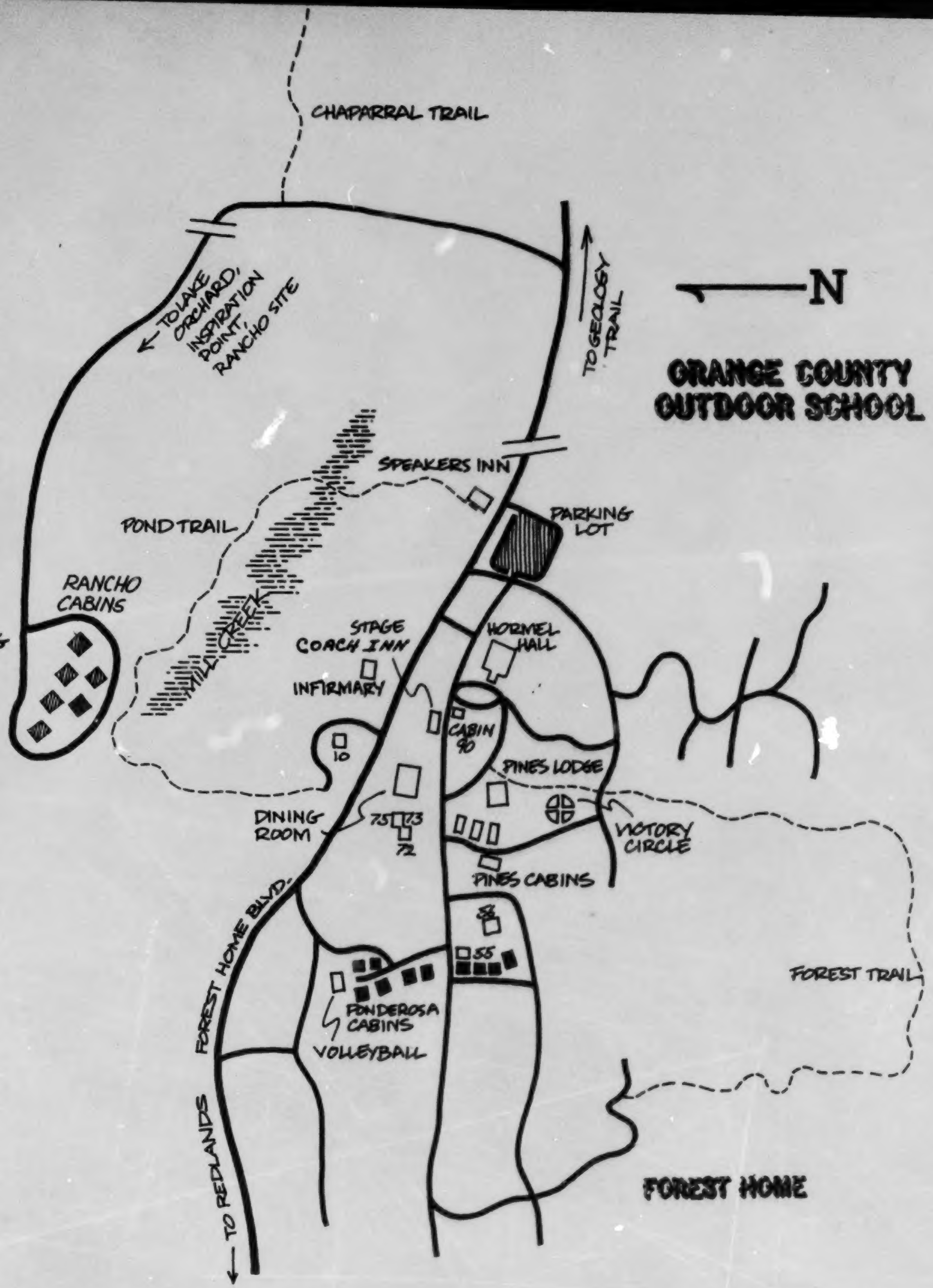
- How do these two plants differ?
- What evidence do you see of ________.
- Compare the texture of these three leaves. Describe them to your partner and to the group.
- What characteristics would you look for to find an example of symbiosis? (See Glossary.)
- How can you tell if this creature is an insect? (See Glossary.)
- What could have caused this tree to fall?
- Why do you think part of this hillside slipped into the canyon?

- If you were a ________. What would you _______. (eat, need for survival, prey upon, etc.)
- Look for examples of ______. (tell your partner and report to the group in 5 minutes.)

Avoid questions - such as: What kind of tree is this? Can you think of a bird that would live in this tree?

Enjoy your group and the beauty surrounding you!

Students will not forget your enthusiasm, or the experience you have provided!


CHAPARRAL TRAIL
N
TO LAKE ORCHARD, INSPIRATION POINT, RANCHO SITE
TO GEOLOGY TRAIL
ORANGE COUNTY OUTDOOR SCHOOL
SPEAKERS INN
PARKING LOT
POND TRAIL
RANCHO CABINS
DINING ROOM
MILL CREEK
STAGE COACH INN
HORMEL HALL
INFIRMARY
CABIN 90
10
PINES LODGE
DINING ROOM
75
73
72
VICTORY CIRCLE
PINES CABINS
58
55
FOREST TRAIL
PONDEROSA CABINS
VOLLEYBALL
FOREST HOME BLVD.
TO REDLANDS
FOREST HOME

PONDEROSA CAMP
SAMPLE: OUTDOOR SCHOOL SCHEDULE

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
	7:50 - Flag Ceremony	7:50 - Flag Ceremony	7:50 - Flag Ceremony	
Buses Arrive - 10:30 am	*Breakfast - 8:00 a.m.	Breakfast - 8:00 a.m.	Breakfast - 8:00 a.m.	Breakfast - 8:00 a.m.
Students settled in cabins Classroom Teachers meet with Principal and/or Lead Teacher	9:20 - 11:30 a.m. TRAILS: Group A - Chaparral Group B - Geology Group C - Forest Group D - Riparian *(Outdoors - Weather Permitting)	9:30 - 10:30 a.m. Evaluation Session with Classroom Teachers Sign-ups for Thursday P.M. Activities Special Activities 11:00 - 3:00 p.m. PICNIC HIKE: Group A - Forest Group B - Riparian Group C - Chaparral Group D - Geology	9:30 - 11:30 a.m. TRAILS: Group A - Geology Group B - Forest Group C - Riparian Group D - Chaparral	9:00 - 10:00 a.m. Ranger Program Classroom Teachers provide supervision 10:00 - 10:30 a.m. Classroom Teacher/ Student Evaluations "Mini-Hike" 10:30 - 11:15 a.m. Square Dancing Classroom Teachers meet with Outdoor School Principal and/ or Lead Teacher
Lunch - 12:30 p.m.	Lunch - 12:00 p.m.	Lunch on Trail	Lunch - 12:00 p.m.	Lunch - 11:30 a.m.
1:30 p.m. - Classroom Teachers and Cabin Leaders meet - Student Orientation 2:30 p.m. Trail Orientation for Classroom Teachers - Activities for Students	1:15 - 2:00 p.m. Rest 2:00 - 4:00 p.m. TRAILS: Group A - Riparian Group B - Chaparral Group C - Geology Group D - Forest Showers/Recreation	3:00 - 4:00 p.m. Showers, Rest 4:00 - 5:00 p.m. Recreation	1:15 - 2:00 p.m. Rest 2:00 - 4:00 p.m. Social Activities Classroom Teachers and Outdoor Staff provide instruction 4:00 - 5:00 p.m. Showers, Rest, Pack	12:30 - 1:00 p.m. Depart 2:00 - 2:30 p.m. Arrival at Home School
Dinner - 5:30 p.m.	Dinner - 5:30 p.m.	Dinner - 5:00 p.m.	Dinner - 5:00 p.m.	
6:15 - 7:00 p.m. Recreation 7:00 - 8:30 p.m. Star Study 9:00 p.m. Lights Out	6:15 - 7:00 p.m. Recreation 7:00 - 8:30 p.m. Night Hike 9:00 p.m. Lights Out	6:15 - 7:00 p.m. Recreation 7:00 - 8:30 p.m. Camp Fire Program 9:00 p.m. Lights Out	6:45 - 8:30 p.m. Square Dancing 9:00 p.m. Lights Out	

RANCHO, PINES CAMPS
SAMPLE: OUTDOOR SCHOOL SCHEDULE

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
	7:50 - Flag Ceremony	7:50 - Flag Ceremony	7:50 Flag Ceremony	
Buses Arrive - 10:30	*Breakfast - 8:00 a.m.	Breakfast - 8:00 a.m.	Breakfast - 8:00 a.m.	Breakfast - 8:00 a.m.
Students settled in cabins Classroom Teachers meet with Principal and/or Lead Teacher	9:20 - 11:30 a.m. TRAILS: Group A - Chaparral Group B - Geology Group C - Forest Group D - Riparian *(Outdoors - Weather Permitting)	9:30 - 11:30 a.m. TRAILS: Group A - Forest Group B - Riparian Group C - Chaparral Group D - Geology	9:30 - 10:30 a.m. Special Activities Classroom Teacher and Outdoor Staff provide instruction 11:00 - 3:00 p.m. PICNIC HIKE: Group A - Geology Group B - Forest Group C - Riparian Group D - Chaparral	9:00 - 10:00 a.m. Ranger Program Classroom Teachers provide supervision 10:00 - 10:30 a.m. Classroom Teacher/ Student Evaluations "Mini-Hike" 10:30 - 11:15 a.m. Square Dancing Classroom Teachers meet with Outdoor School Principal and/or Lead Teacher
Lunch - 12:30 p.m.	Lunch - 12:00 p.m.	Lunch - 12:00 p.m.	Lunch on Trail	Lunch 11:30 a.m.
1:30 p.m. - Classroom Teachers and cabin leaders meet. 2:30 p.m. Trail Orientation for Classroom Teachers - Activities for Students	1:15 - 2:00 p.m. Rest 2:00 - 4:00 p.m. TRAILS: Group A - Riparian Group B - Chaparral Group C - Geology Group D - Forest Showers/Recreation	1:30 - 2:00 p.m. Rest 2:00 - 2:30 p.m. - Classroom Teachers and students meet - Evaluation session - Sign-ups for Special Activities 2:30 - 4:15 p.m. Special Activities Showers/Recreation	3:00 - 4:00 p.m. Showers, Rest, Pack 4:00 - 5:00 p.m. Recreation	12:30 - 1:00 p.m. Depart 2:00 - 2:30 p.m. Arrival at Home School
Dinner - 5:30 p.m.	Dinner - 5:00 p.m.	Dinner - 5:00 p.m.	Dinner - 5:00 p.m.	
6:15 - 7:00 p.m. Recreation 7:00 - 8:30 p.m. Star Study 9:00 p.m. Lights Out	6:15 - 7:00 p.m. Recreation 7:00 - 8:30 p.m. Night Hike 9:00 p.m. Lights Out	6:15 - 7:00 p.m. Recreation 7:00 - 8:30 p.m. Camp Fire Program 9:00 p.m. Lights Out	6:45 - 8:30 p.m. Square Dancing 9:00 p.m. Lights Out	

OUTLINE

GEOLOGY TRAIL

Related Learnings:

1. Mountain Building Processes
2. Continental Drift
3. The Three Major Classifications of Rocks
4. Rock Cycle
5. Weathering
6. Local Rocks and Minerals
7. Local Gold History

Activities:

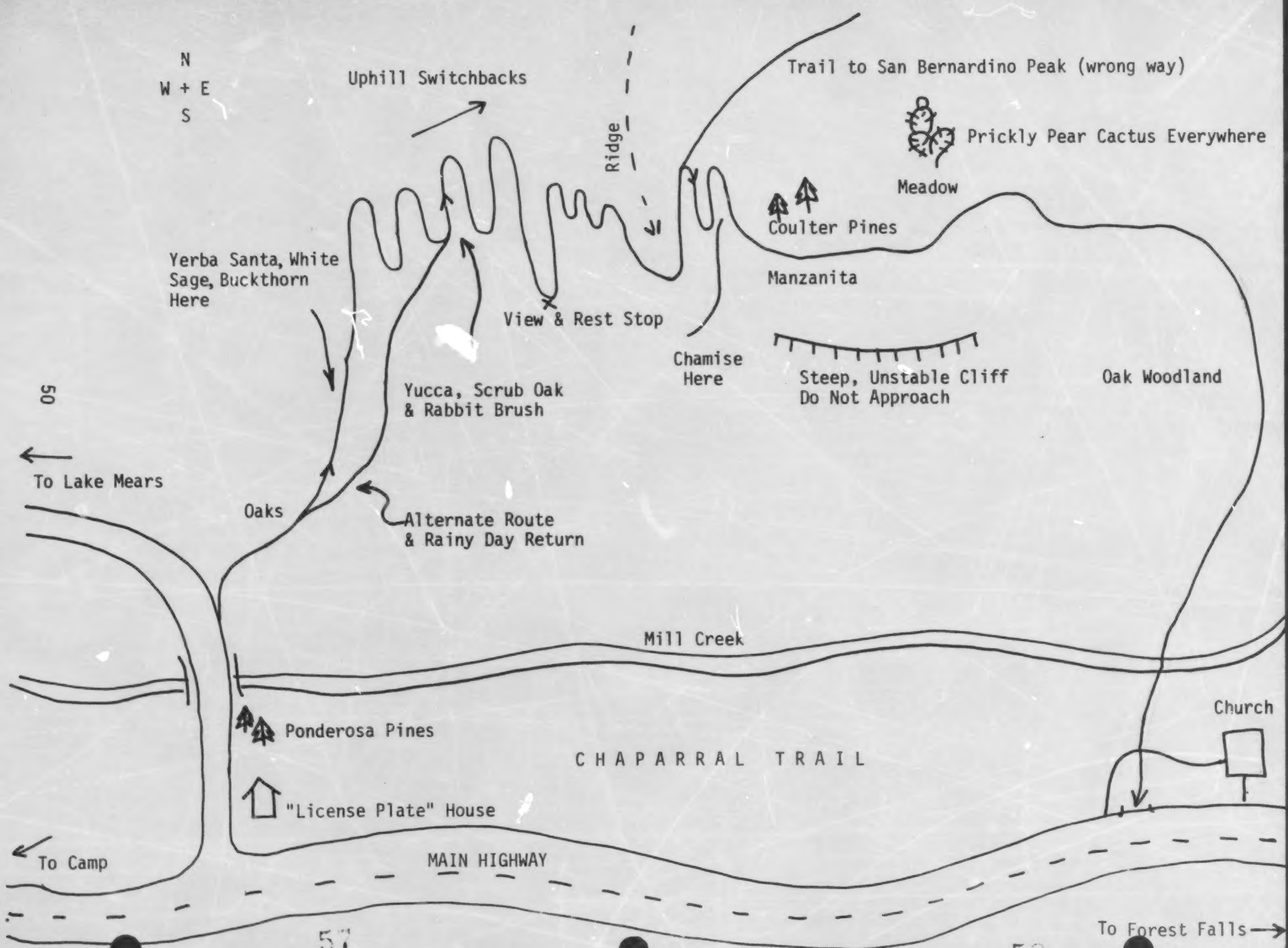
1. Identifying Rocks and Minerals
2. Use of Rock Hammers
3. Panning for Gold

Rocks and Minerals:

1. Granite
2. Marble
3. Gneiss
4. Mica Schist
5. Mica
6. Feldspar
7. Quartz
8. Garnet
9. Epidote

Additional Vocabulary:

1. Faulting
2. Folding
3. Geology
4. Igneous Rock
5. Intrusion
6. Magma
7. Metamorphic Rock
8. Mineral
9. Rock
10. Sedimentary Rock
11. Volcanism


N
W + E
S
Uphill Switchbacks
Ridge
Trail to San Bernardino Peak (wrong way)
Prickly Pear Cactus Everywhere
Meadow
Coulter Pines
Yerba Santa, White Sage, Buckthorn Here
Manzanita
View & Rest Stop
Chamise Here
Steep, Unstable Cliff Do Not Approach
Oak Woodland
Yucca, Scrub Oak & Rabbit Brush
50
To Lake Mears
Oaks
Alternate Route & Rainy Day Return
Mill Creek
Church
Ponderosa Pines
CHAPARRAL TRAIL
"License Plate" House
To Camp
MAIN HIGHWAY
To Forest Falls

OUTLINE

CHAPARRAL TRAIL

Related Learnings:

1. Ecosystem
2. Slope Effect
3. Limiting Factors
4. Adaptations
5. Symbiosis
6. Fire Ecology
7. Erosion
8. Habitat
9. Man's Impact

Activities:

1. Techinques of Hiking
2. Animal Evidence Investigation
3. Soil Temperatures
4. Soil Compaction
5. Transpiration

Plants:

1. Buckthorn
2. Chamise
3. Manzanita
4. Mountain Mahogany
5. Prickly Pear Cactus
6. Rabbit Brush
7. Scrub Oak
8. White Sage
9. Wild Buckwheat
10. Yerba Santa
11. Yucca

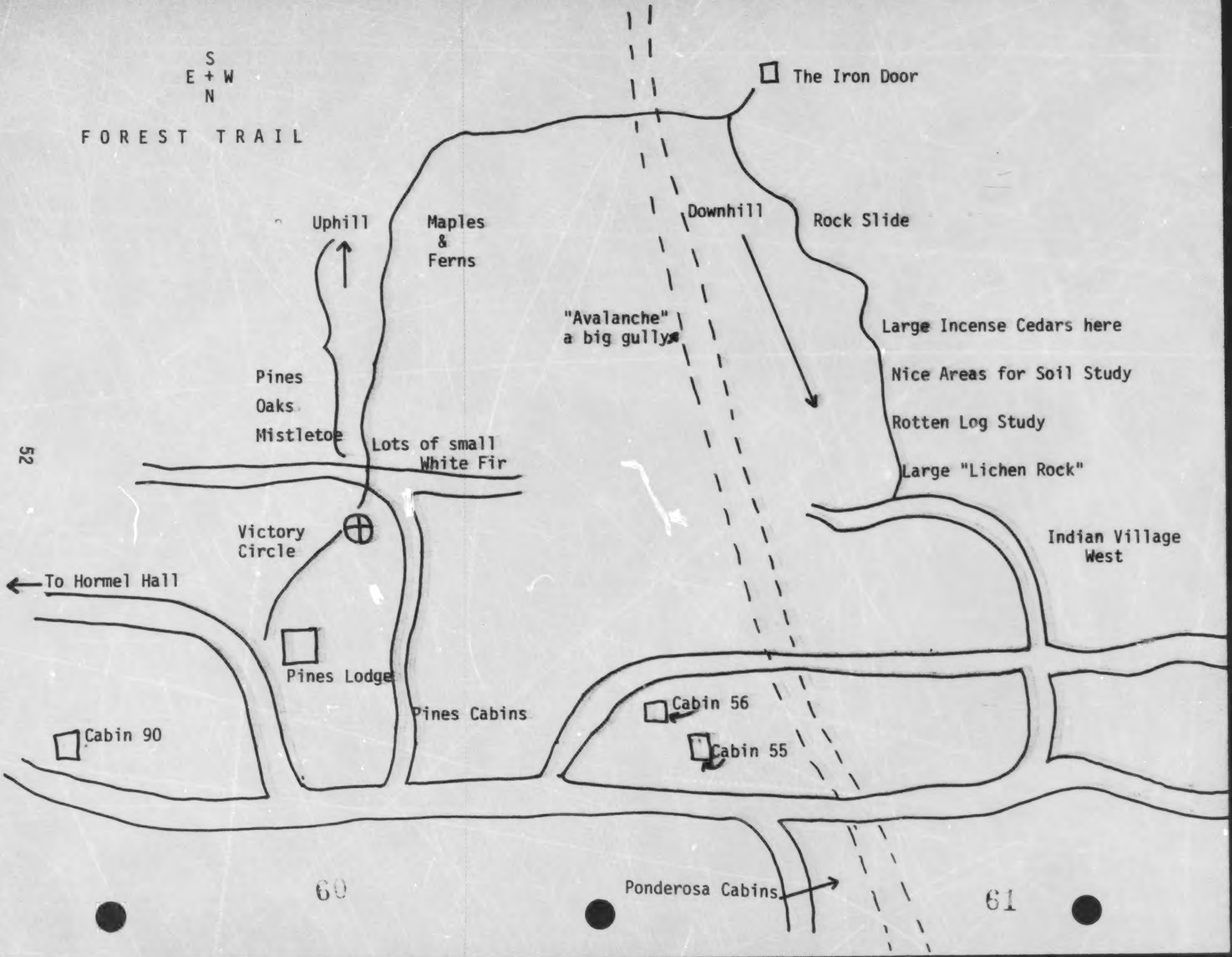
Animals:

1. Alligator Lizard
2. Big Horn Sheep
3. Bobcat
4. Coyote
5. Cottontail Rabbit
6. Gopher
7. Ground Squirrel
8. Mice
9. Mountain Quail
10. Mule Deer
11. Rattlesnake
12. Red-Tailed Hawk
13. Scrub Jay
14. Western Bluebird
15. Western Fence Lizard
16. Wood Rat ("Pack Rat")

Additional Vocabulary:

1. Environment
2. Nocturnal
3. Nutrients
4. Pollination
5. Predator
6. Scat
7. Soil Compaction
8. Transpiration

FOREST TRAIL


S
E + W
N
The Iron Door
Uphill
Maples & Ferns
Downhill
Rock Slide
Large Incense Cedars here
"Avalanche" a big gully
Nice Areas for Soil Study
Pines
Oaks
Mistletoe
Rotten Log Study
Lots of small White Fir
Large "Lichen Rock"
Victory Circle
Indian Village West
← To Hormel Hall
Pines Lodge
Cabin 56
Pines Cabins
Cabin 90
Cabin 55
Ponderosa Cabins

OUTLINE

FOREST TRAIL

Related Learnings:

1. Ecosystem
2. Symbiosis
3. Carbon Dioxide/Oxygen Cycle (CO_2/O_2 Cycle)
4. Photosynthesis
5. Evergreen - Deciduous
6. Tree Structure
7. Soil Components
8. Soil Cycle
9. Watershed
10. Man's Impact

Activities:

1. Examination of Tree Growth
2. Rotten Log Examination
3. Measuring Trees
4. Animal Evidence Investigation
5. Sunprints

Plants:

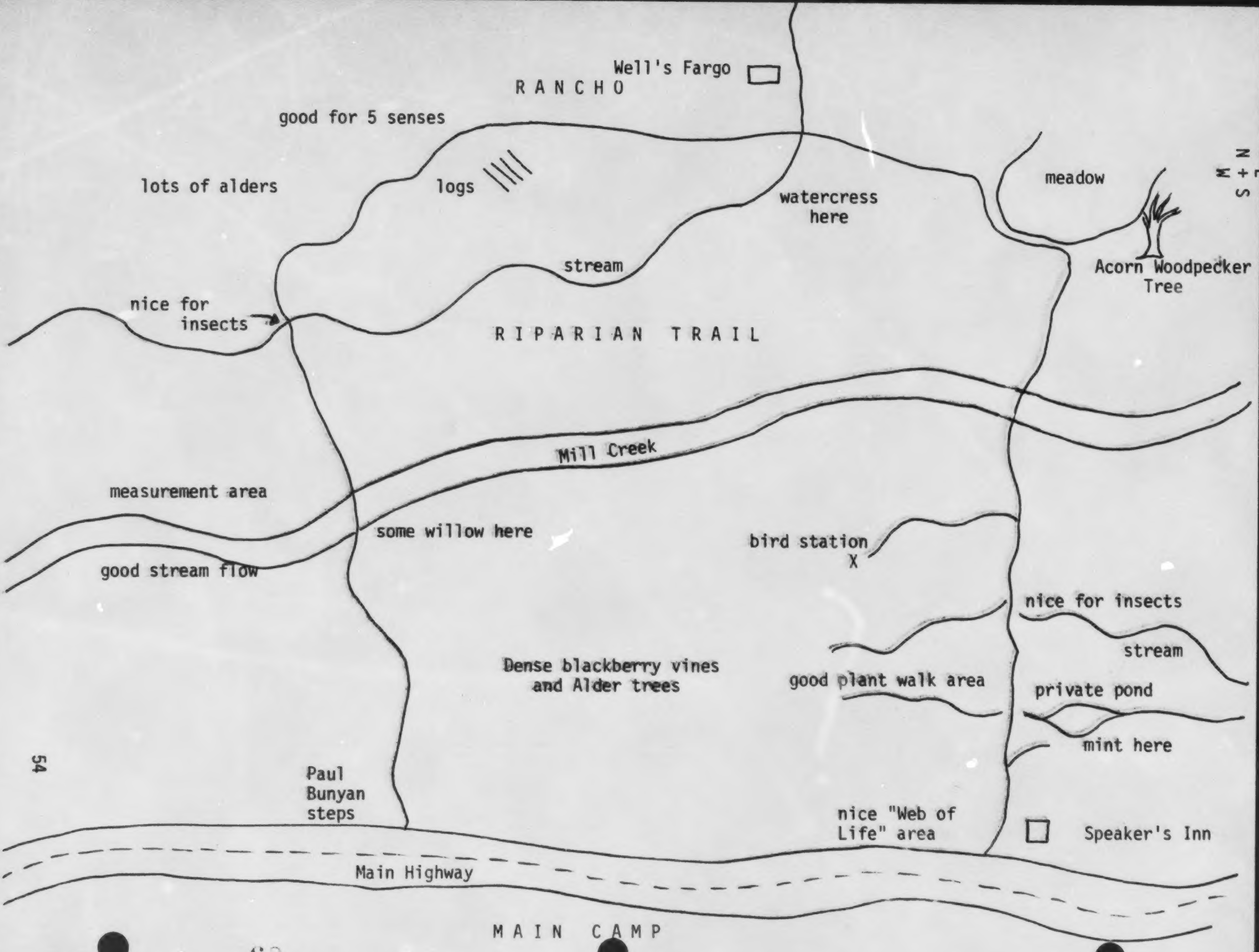
1. Bay Leaf (or California Laurel)
2. Big Cone Spruce
3. Big Leaf Maple
4. Black Oak
5. Canyon Live Oak
6. Coulter Pine
7. Incense Cedar
8. Lichen
9. Mistletoe
10. Moss
11. Ponderosa Pine
12. Sugar Pine
13. Sword Fern
14. White Fir

Animals:

1. Band-Tailed Pigeon
2. Black Bear
3. Chipmunk
4. Gray Fox
5. Gray Squirrel
6. Mice
7. Mountain Chickadee
8. Mountain King Snake
9. Mountain Lion
10. Mule Deer
11. Owls
12. Raccoon
13. Stellar's Jay
14. Western Skink
15. Woodpeckers

Additional Vocabulary:

1. Annual Ring
2. Cambium
3. Chlorophyll
4. Conifer
5. Decomposer
6. Gall
7. Humus
8. Litter
9. Nutrients
10. Snag
11. Soil
12. Spores
13. Whorl


Well's Fargo
RANCHO
good for 5 senses
lots of alders
logs
watercress here
meadow
N
W + E
S
Acorn Woodpecker Tree
stream
nice for insects
RIPARIAN TRAIL
Mill Creek
measurement area
some willow here
good stream flow
bird station X
nice for insects
stream
Dense blackberry vines and Alder trees
good plant walk area
private pond
mint here
Paul Bunyan steps
nice "Web of Life" area
Speaker's Inn
Main Highway
MAIN CAMP

OUTLINE

RIPARIAN TRAIL

Related Learnings:

1. Ecosystem
2. Interdependence
3. Food Chain
4. Plant Succession
5. Insect Life Cycles
6. Water Cycle
7. Natural Resources
8. Weather Prediction
9. Man's Impact

Activities:

1. Aquatic Insects
2. Animal Evidence Investigation
3. Using the Bioscope
4. Web of Life Game
5. Weather Station
6. Sensory Awareness
7. Self Expression

Plants:

1. Algae
2. Blackberry
3. Currant
4. Mugwort
5. Mint
6. Stinging Nettle
7. Watercress
8. White Alder
9. Wild Rose

Animals:

1. Caddisfly
2. Diving Beetle
3. Hellgrammites
4. Mayfly
5. Mosquito
6. Stonefly
7. Water Strider
8. Fish (rare)
9. Raccoons
10. Squirrels
11. Acorn-Woodpecker
12. Yellow-Bellied Sapsucker
13. Alligator Lizard
14. Western Fence Lizard

Additional Vocabulary:

1. Accumulation
2. Aquatic
3. Condensation
4. Consumers
5. Evaporation
6. Humidity
7. Insect
8. Larva
9. Metamorphosis
10. Nymph
11. Percolation
12. Precipitation
13. Producers
14. Pupa
15. Riparian

SPECIAL ACTIVITIES

(Will vary according to time, season, staff talents and abilities)

Ranger Program
Contact with a U.S. Forest Service Ranger. Instruction on fire prevention.

Conservation
Tree planting, trail maintenance, bridge repair, picking up litter, wood splitting.

Survival
Shelter building, survival kits, edible plants, map and compass study.

Sensory Awareness
Five senses walk.

Animal Study
Tracking and track casting, birdstalking, insect collecting.

Outdoor Cooking
Campfire cooking, fire building, edible plants.

Indian Living
Basketry, arrowhead chipping, making yucca rope.

Museum
Collecting for displays, examining specimens, microscope study.

Self Expression
Photography, drawing and sketching, creative writing.

Arts & Crafts
Leather, crayon on fabric, rattan baskets, name tags, manzanita mini-forest, God's Eyes, forest collage.

New Games
Various non-competitive games.

Snow Play
Snow sculpture, snow cones, innertubing/sliding, snowball fights.

SOCIAL ACTIVITIES

Square Dancing

Campfire
Songs, stories, skits.

Fall and Winter Festivals

Free Time Recreation

EVENING ACTIVITIES

Night Hike

Related Learnings:

1. Nocturnal/Diurnal
2. Predator/Prey Relationships
3. Animal Adaptations to Darkness

Activities:

1. Predator Calling
2. Camouflage Game
3. Hiking at Night
4. Campfire; songs & stories

Star Study

Related Learnings:

Components of Our Solar System
   1. Sun
   2. Planets
   3. Moons
   4. Asteroids
   5. Comets
   6. Meteors

Components of Galaxies
   1. Nebulas
   2. Star Clusters
   3. Stars
   4. Novas
   5. Supernovas
   6. Black Holes

Activities:

1. Slide Presentation
2. Constellation Identification
3. Use of the Telescope
4. Use of Binoculars

Additional Vocabulary:

1. Astronomy
2. Light Year
3. Satellite

Social Activities

Activities:

1. Square Dancing
2. Camp Fire
3. Festivals

BACKGROUND
INFORMATION

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the original document was blank.

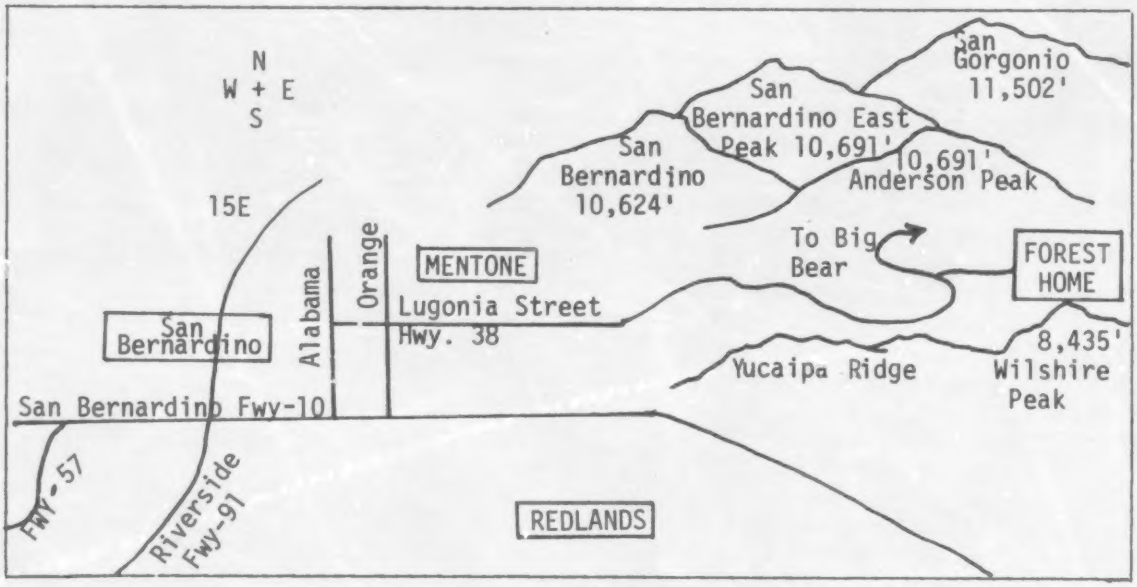
CLASSROOM PREPARATION BEFORE ARRIVAL AT OUTDOOR SCHOOL

Geography of Area to be Visited

Almost eighty miles away to the north-east lie the San Bernardino Mountains. The Orange County Outdoor School is located approximately 25 miles from the city of San Bernardino in a narrow canyon called the "Valley of the Falls." A small cabin on the Forest Home grounds will be your mile-high home for five days.

The San Bernardino Mountains, as well as the neighboring San Gabriel Mountains, are located in the Transverse Range system of mountain chains that stretch from east to west. The San Bernardino Mountains were formed by intensive folding and faulting. The San Andreas Fault adjoins the Mill Creek Fault near the mouth of the canyon. Mill Creek Canyon was formed through activity along these faults and erosion by the stream.

The Outdoor School is located at 5,280 feet just two miles to the east of Highway 38 which continues on to the Barton Flats area and Big Bear. In the wilderness areas above the Outdoor School are many trails leading to meadows, dense forests and high peaks. San Gorgonio peak, the highest peak in Southern California (11,502'), stands above the timber line only a few "hiking miles" from the Orange County Outdoor School.


N
W + E
S
15E
San Bernardino
Alabama
Orange
MENTONE
Lugonia Street
Hwy. 38
San Bernardino Fwy-10
FWY-57
Riverside Fwy-91
REDLANDS
San Bernardino 10,624'
San Bernardino East Peak 10,691'
San Gorgonio 11,502'
10,691'
Anderson Peak
To Big Bear
FOREST HOME
8,435'
Wilshire Peak
Yucaipa Ridge

Take the Riverside Freeway (Highway 91) to the San Bernardino Freeway (Interstate 10). Take Interstate 10 towards Redlands. When entering Redlands, take the Orange off-ramp. Turn left on Orange, go under the freeway to Lugonia Street and turn right. Follow this street through the town of Mentone (Highway 38), past the Mill Creek Ranger Station, through Mountain Home Village to the Forest Home cutoff.

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History of the Area to be Explored

Originally, the area now known as the Valley of the Falls was settled by the "Serrano" Indians of the Shoshone stock. The Spaniards called these Indians the "mountaineers" as they lived in the San Bernardino and San Gabriel Mountains. In 1820 water was moved from Mill Creek to an area near Yucaipa to irrigate crops. Serrano Indians worked on the ditch that carried the water and cut the timber used in the building of the San Bernardino Mission.

Vast quantities of timber was hand-hewed by Spaniards, Mexicans and Indians in Mill Creek Canyon for over 20 years. Mormon settlers built a saw mill in 1852 at the mouth of the canyon and later built a second mill farther up stream near the Forest Home area which was destroyed by flood in 1862. Lumber from these mills was used to build the San Bernardino Rancho.

The first three-phase hydro-electric plant in the United States was located on Mill Creek in 1892. You can see this plant on your left as you cross the bridge when approaching Forest Home. The bronze plaque located on the plant was placed there in memory of H.H. Sinclair, the builder of the plant.

In Falls Creek Canyon, five miles above Mill Creek, are the remains of a small cabin built by John Dobbs. He constructed a tunnel for the purpose of diverting Falls Creek water into the Alger Creek watershed. Water diversion never occurred as Congress passed a law around the turn of the century prohibiting the diversion of water from one watershed to another.

In 1908 officials of the United States government signed papers assuring protection and preservation of the area we call the San Bernardino National Forest. In 1931 the highest and most primitive part of the mountains was set aside as the San Gorgonio Wilderness Area, to be forever preserved in its natural state. Today, "the San Bernardinos" receive about seven million visitors annually, making them one of the most heavily used mountain ranges in the nation.

The U.S. Forest Service, a government agency, was established to manage our forests for the most productive use and the permanent good of all people; not for the temporary benefit of individuals and companies. The term, Multiple Use indicates that the Forest Service will manage, maintain and preserve various recreation areas, grazing land, lumber products, wildlife, watershed and wilderness areas for the generations to follow. The headquarters for the district ranger and assistants in charge of the forest is located at the Mill Creek station at the mouth of the canyon.

The San Bernardino Transverse Range system supports a mixed Forest on the north facing slope, and a sunny Chaparral area on the south facing slope. Mill Creek, flowing through the middle of the canyon, is the headwaters of the Santa Ana River and provides the citizens of Orange County with a portion of their water supply. It is crucial that students recognize the importance of preserving this valuable resource and keeping it free from pollution. The surrounding streamside (Riparian) environment provides us with an opportunity to study plant, animal and insect life and the streambed is filled with different rocks and minerals to observe and examine.

The three previously described ecosystems consist of natural communities of plants and animals interrelated and interacting with their physical environment. We will discover at the Outdoor School how living things, including humans, have adjusted to their environment and are dependent upon one another.

CHAPARRAL TRAIL

RELATED LEARNINGS

Ecosystem

The Chaparral environment is an ecosystem where plants, animals and non-living things interact. The Chaparral Trail provides an opportunity for students to observe and study the interdependent components of this ecosystem.

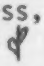
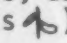
Slope Effect

Chaparral occurs at this elevation mainly on south facing slopes. This is because the orientation of the sun gives south facing slopes significantly more light and heat than north facing slopes. This causes the generally hot, dry conditions that support the Chaparral community.

Limiting Factors

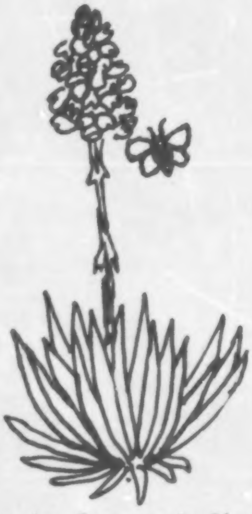
In any environment there are physical factors which determine the type of plants and animals that can survive there. In the Chaparral some limiting factors are steep rocky terrain, small quantities of water and lack of nutrients.

Adaptations

Plants have developed ways to adjust to their environment. The Chaparral environment is hot, dry and usually contains poor soil. Types of adaptations include: small, light colored leaves, woodiness, toughness, deep roots in search of water, leaves with upward turned tips (this  ; not this ) and thick waxy coating on leaves.

Symbiosis

Symbiosis is a special relationship between two organisms. In the examples taught at Outdoor School, the relationship is one of mutual dependence which is beneficial to both. The example used in the Chaparral is that of the Yucca and the Pronuba (or Yucca Moth). The Yucca Moth lays her eggs in Yucca flowers and in this process pollinates the flowers. The moth provides the only means of pollination for the Yucca flowers and these flowers are the only place where the moth will lay eggs.



Fire Ecology

The hot, dry environment of the Chaparral is susceptible to frequent fires. As a result, fire is an integral part of the ecosystem. Many plants,(i.e., Chamise and Black Sage,) have volatile oils in their leaves which burn easily. These oils seap into the ground and prevent new plants from growing until chemically changed by fire. Many seeds germinate after a fire (i.e., Buckwheat, Manzanita). Some plants,(i.e., Chamise and Manzanita) exhibit crown sprouting after a fire. This rapid regrowth appears from an underground crown or root burl. The Chaparral has adapted to fire so well that it will remain a healthy community even if it burns as often as every twenty years.

Erosion

One value of the Chaparral is the prevention of erosion (a wearing away of earth) in areas too severe to support any other plant life. The steep slopes and poor soil on the Chaparral side erode heavily where the plants are not present.

Habitat

A habitat is a region where all requirements for life exist for a particular species of a plant or animal. Knowledge of an animal's habitat identifies the environmental conditions that must be present wherever that animals is found. For example, Big Horn Sheep are found on the steep, rocky slopes with sparse vegetation at the head of our canyon. Habitat protection is important for the preservation of our wildlife.

Man's Impact

Whenever people enter an area they have an impact on that area. The nature and degree of impact depends upon how many people enter an area and what they do while they are there. In our Chaparral the impact has been mainly soil compaction, erosion and littering along the trails. The Chaparral is on National Forest Land and is protected from other activities (i.e., construction or hunting) which could be detrimental to the environment. People who come to the Chaparral to observe and enjoy it have the least impact. They can come to the Chaparral, leave little evidence of their visit, and still depart enriched.

SUGGESTED ACTIVITIES

Techniques of Hiking

The Chaparral Trail is long, involves some elevation gain and has a few uneven and steep portions. Inform students about proper ways to negotiate the trail. When walking uphill they should try to walk as normally as possible; heel-to-toe is less tiring. When walking downhill or on uneven ground they should choose secure areas for their feet, and avoid loose rocks. When hiking on trails with switchbacks, they should not take shortcuts. Shortcuts cause unnecessary erosion, and are more tiring than hiking along the regular trail.

Animal Evidence Investigation

Many signs of animals can be seen along the Chaparral Trail. Examples are: wood rat nests, sapsucker marks on Mountain Mahogany, ground nesting wasp holes, gnawed pine cones, various animal tracks and scat. Look for these and other signs as you hike the trail. This evidence can be used to learn about habits of the animals. For example, scat can be identified and a closer examination can reveal what the animal ate. Often the animals themselves can be seen. Birds likely to be seen are: the Western Bluebird, Scrub Jay, Dark-Eyed Junco, Mountain Quail and Red-Tailed Hawk. The Western Fence Lizard and the Alligator Lizard are the common reptiles seen on the trail. The mammals are mainly nocturnal and seldom observed.

Soil Temperatures

Record soil temperatures at different locations (sun and shade), in different colors of soil, and at different depths. Discuss factors that could influence the results and the effects of plants and animals. Discuss soil as an insulator. (Soil temperatures remain fairly constant day and night below the surface.)

Soil Compaction

Soils usually have a structure which include a certain amount of space between the particles. Soil can become compacted when animals (man included) repeatedly travel over one area of ground. This destroys the structure and diminishes or eliminates the air spaces. Trails are ideal examples of compaction. This activity includes comparing the amount of compaction on and off the trail, and the rates of water percolation on and off the trail.

Transpiration Experiment

Plants growing in direct sun tend to lose water faster than those growing in the shade. This water loss occurs through pores in the leaves and is called transpiration. Use plastic bags to wrap leaves of one type of plant in the sun and one in the shade. Good plants to use are the Canyon Live Oak and the Scrub Oak. When wrapping the leaves, make sure you have the same number of leaves in each bag and that the bags are airtight. Be sure to choose a site that you will return to later in the hike because it takes at least 20 minutes to get useful results. Return and observe the plastic bags. Any water contained in the bags is water lost by the plant. Which plant is losing the most water? How does the location of a plant affect the loss of water? After the experiment record your observations then remove the plastic bag.

DUSKY FOOTED WOOD RAT

PLANTS

Pressed specimens of these plants and additional information about them are available at Forest Home.

Buckthorn (*Ceanothus cordulatus*)

A shrub with pale green stems and leaves and stiff spiny branches. Buckthorn is a favored food of deer who simply strip off the leaves rather than eating the branches.

Chamise (*Adenostoma fasiculatum*)

A tough shrub with very small rounded leaves. It is well adapted to fire with volatile oils in its leaves and the ability to resprout from a root crown or burl after a fire. It is one of the most abundant plants in the Chaparral, especially at lower elevations.

Manzanita (*Arctostaphylos pringlei*)

This shrub is easily recognized by the smooth red bark, one of the reasons its wood is prized for decorations. Manzanita is the Spanish word for "little apple." This refers to the small hard fruit which was eaten raw and made into a beverage by the Indians and early settlers. The berry must pass through an animal's digestive system or go through a fire before it can germinate. Manzanita has the ability to resprout after a fire.

Mountain Mahogany (*Cercocarpus betuloides*)

This is one of the "trees" of the elfin forest. It is taller than most of the Chaparral shrubs with distinctive white bark and upturned leaves.

Prickly Pear Cactus (*Opuntia basilaris*)

Like most cacti this plant has thick fleshy stems protected by spines. These stems or pads are edible when young and are sold in some markets under the name Napalitos. The purple fruit, called cactus apples, are also edible after removing the small spines or "no-see-ums" and peeling them.

Rabbit Brush (*Chrysothamnus nauseqsus*)

This hardy plant is found in desert and sagebrush country as well as in the Chaparral. It has light green stems, tufts of yellow flowers, and small thin leaves that drop in the winter. This makes it one of the few deciduous plants in the Chaparral.

Scrub Oak (*Quercus dumosa*)

A shrub with tough, prickly, dark green leaves which protect the acorns from being eaten. The acorn caps usually remain on the branches long after the acorns have dropped. The acorns were eaten by the Indians who prepared them by leaching out the bitter tannins and grinding them up. Scrub Oak is often considered to be the namesake of the Chaparral since "Chaparro" is the Spanish word for scrub plants similar to this oak.

White Sage (*Salvia apiana*)

A very aromatic member of the Chaparral with soft, light, gray-green leaves. The plant can be used as a spice in cooking, much like the sage in turkey dressing. The Wood Rat (or Pack Rat) lines its nest with White Sage leaves as the strong odor prevents predators from detecting the animal by its smell. The Indians used White Sage to mask their scent while hunting.

Wild Buckwheat (*Eriogonum fasiculatum*)

A low growing plant with dense heads of white flowers that turn red with age. This is not the buckwheat of pancake and cereal fame, but the Indians ground up the seeds to make flour.

Yerba Santa (*Eriodictyon trichacalyx*)

An aromatic plant with shiny green leaves. Yerba Santa is the Spanish word for holy herb. Other names for this plant are "Indian Chewing Gum" because the Indians chewed it to quench their thirst on long marches, or "Tutti Frutti" plant because it smells like "Tutti Frutti" gum. Tea made from the leaves was used by early settlers to treat headaches and sore throats. Today, Yerba Santa tea can be found in health food stores.

Yucca (*Yucca whipplie*)

An unusual looking plant with dagger-like gray-green leaves. The flower stalk is 2-3 meters tall with creamy white flowers. Yucca was extremely useful to the local Indians. The fibrous leaves were made into baskets, sandals and rope, the roots were used for soap, and the green stalk was cooked and eaten.

FOREST TRAIL

RELATED LEARNINGS

Ecosystem

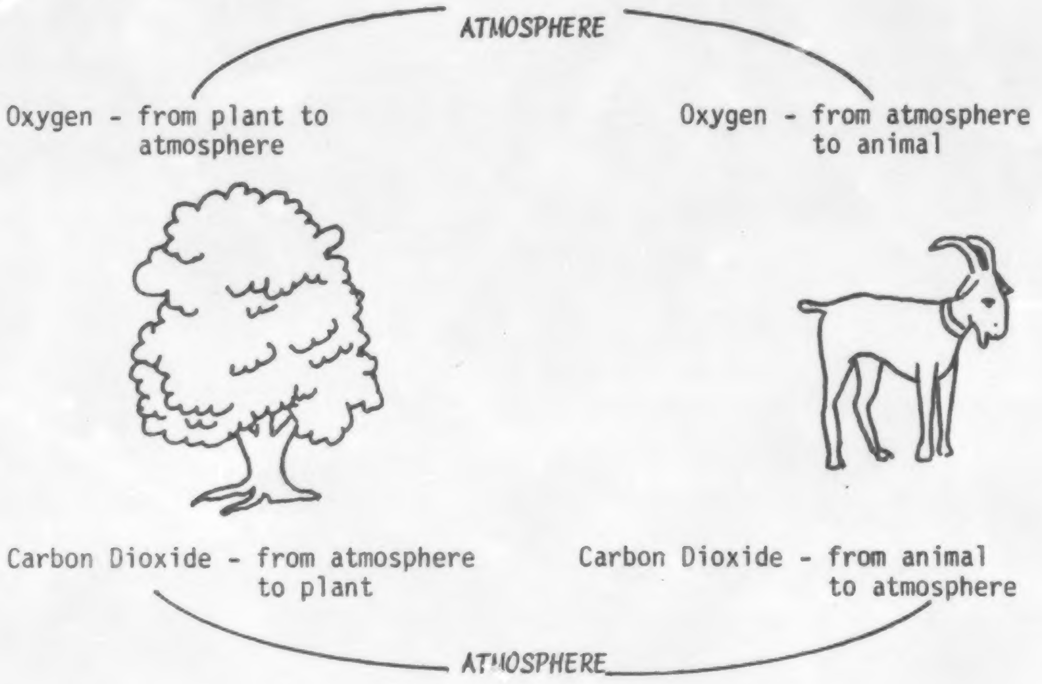
The forest environment is an ecosystem where plants, animals, and non-living things interact. The forest trail provides and opportunity for students to observe and study the interdependent components of this ecosystem.

Symbiosis

Symbiosis is a special relationship between two organisms. In the examples taught at Outdoor School the relationship is one of mutual dependence and is beneficial to both. Lichen is a good example being made up of an alga and a fungus. The alga provides food through photosynthesis and the fungus provides the protective structure.

Carbon Dioxide - Oxygen Cycle (CO_2/O_2)

This cycle is the worldwide exchange of gases between plants and animals. Plants take in carbon dioxide and give off oxygen in the process of photosynthesis. Animals take in oxygen and give off carbon dioxide as they breathe. Plants are the primary source for the world's supply of oxygen and support the existence of animals.


ATMOSPHERE
Oxygen - from plant to atmosphere
Oxygen - from atmosphere to animal
Carbon Dioxide - from atmosphere to plant
Carbon Dioxide - from animal to atmosphere
ATMOSPHERE

Photosynthesis

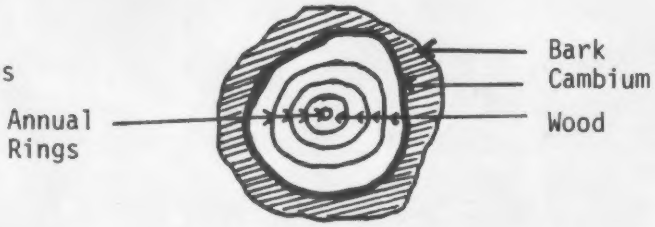
Green plants have the ability to change solar energy into food through the process of photosynthesis. This takes place mainly in the leaves. Plants containing chlorophyll use carbon dioxide, water and sunlight to make carbohydrates (usually sugar) and oxygen. In this way plants are the primary source of the world's food supply.

Evergreen - Deciduous

Trees that retain some of their leaves all year are called evergreen trees. These trees continuously shed leaves and grow new ones. Deciduous trees lose all of their leaves at once, usually in the fall. These trees are dormant until spring when they grow new leaves.

Tree Structure

Woody plants grow in two directions They get taller and wider.



Bark -	The outer portion which is dead, protects the living parts of the tree from injury, insects and disease. The inner, living portion carries food from the leaves to the roots.
Cambium -	The living and growing part of tree trunks and branches.
Wood -	The inner portion, which is dead, supports the tree. The outer, living portion carries water and minerals from the roots to the leaves.
Annual Rings -	The cambium is actively growing only part of each year. The cycle of growth and rest appears as rings in the wood.

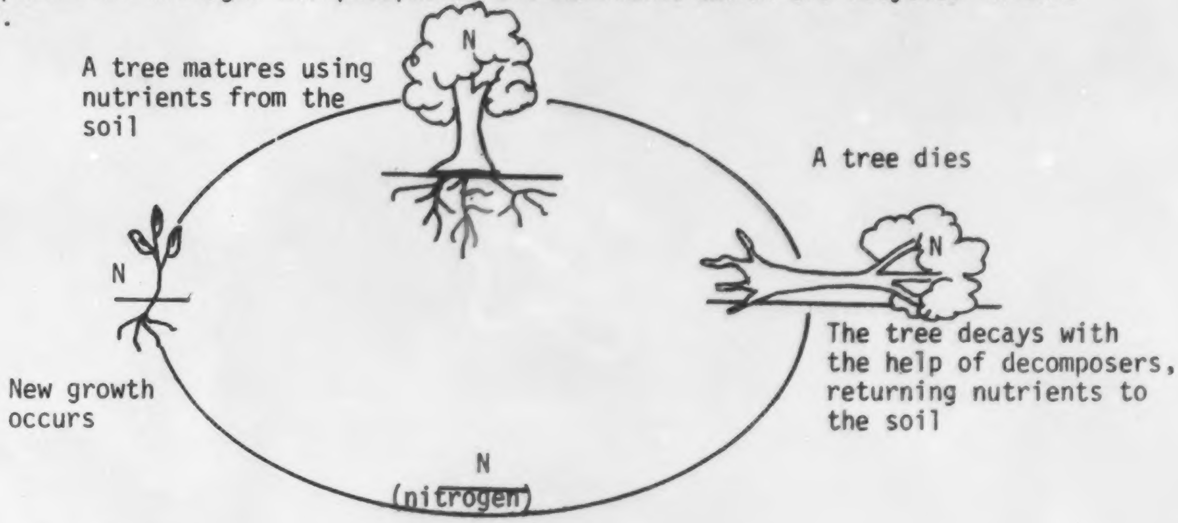
Soil Components

Soil is a combination of small rock particles and decayed plant and animal material. The forest floor is a good place to study soil because the stages of decay and mixing of the organic matter can easily be seen. Soil is made up of layers which reflect the various stages of formation. These are:

1. Topsoil - The uppermost layer. It consists of litter, accumulation of dead leaves and branches on the forest floor and humus, the decayed organic matter beneath it. Duff is occasionally used to describe a layer of partially decayed material between litter and humus.
2. Subsoil - The middle layer. It is the mixing zone between topsoil and parent rock materials. It has very little organic matter and is not suitable for plant growth.
3. Parent Rock Material - Bedrock and pieces of that bedrock that eventually become part of the soil.

Soil Cycle

Nutrients are important elements in any ecosystem because they promote plant growth. People fertilize their lawn and/or crops to increase the nutrients in the soil and stimulate growth. In the forest the nutrients needed by plants are contained in the organic layers of soil. Decomposers such as bacteria, fungi and insects break down organic matter which allows the nutrients to be reused. Compounds of nitrogen and phosphorus are nutrients which are recycled in this way.


A tree matures using nutrients from the soil
N
A tree dies
N
The tree decays with the help of decomposers, returning nutrients to the soil
N
(nitrogen)
N
New growth occurs

Watershed

Mill Creek Canyon is the watershed for Mill Creek. The size, shape, amount and type of precipitation, terrain and vegetation of the watershed determines the character of the stream. Only part of this precipitation that falls on a watershed reaches the stream. This is known as runoff. In Mill Creek Canyon the steep canyon walls indicate relatively rapid runoff. Snow will melt and run off faster on the Chaparral side than on the Forest side. This influences the amount of water in the stream during each season. Erosion can put abnormal amounts of soil into the stream which affects stream flow and water quality. Any chemicals in the watershed (i.e., fertilizer, waste products from towns, oil on road surfaces) may eventually contaminate the stream.

Man's Impact

Forests are used in a variety of ways by people. Different uses of the forest affect the ecosystem in different ways. Forests can act as watersheds, they provide sites for recreation such as camping, skiing or hunting, and they are the major sources of wood. The effects of these uses vary from the direct removal of trees to erosion, littering, man-caused fires, and smog damage. Wildlife is affected by the alteration or destruction of their habitats. Forest management is the consideration of all economic and social uses desired while minimizing the impact on the ecosystem.

SUGGESTED ACTIVITIES

Examination of Tree Growth

On a cut stump find the wood, cambium and bark. Count the annual rings to determine the age of the tree. Look for signs of past injury and years of rapid or slow growth.

Rotten Log Examination

Find a downed tree that is starting to decay. Look for evidence of decomposition (crumbling fragments, spongy wood, a damp earthy smell) and decomposers (fungi, insect larva, adult insects).

Measuring Trees

Tree diameters can be measured using units of meters, feet or even children. Tree height can be estimated by students with a pencil and a partner. Procedures for estimating tree height is available at Outdoor School.

Animal Evidence Investigation

Many signs of animal life can be seen along the forest trail. Examples are: wasp galls, feathers, nest holes in trees, animal tracks, Engraver Beetle trails, gnawed pine cones and the animals themselves. Tree Squirrels and Chipmunks are mammals that are likely to be seen. Alligator Lizards and Western Fence Lizards are the common reptiles on the trail. Stellar's Jays, Chickadees and Band-Tailed Pigeons are the birds usually seen. Try to discover something about the animal from the evidence found. For example, animal tracks can show what type animal was there and which way it was going.

Sunprints

Prints of natural objects such as leaves or twigs can be made using light sensitive paper. Materials and instructions are available at the Outdoor School.

PLANTS

Pressed specimens of these plants and additional information about them is available at Forest Home.

Bay Leaf or California Laurel (*Umbellularia californica*)

An evergreen tree with long thin leaves and a strong aroma. The leaves are used as a spice and at Forest Home you may find one in your spaghetti or stew.

Big Cone Spruce (*Pseudotsuga macrocarpa*)

This tree has a long thin trunk, long spindly branches, and drooping branchlets. It is a close relative of the Douglas Fir, a northern tree, and is often mistaken for it. The main difference is cone size, Big Cone Spruce has large cones and Douglas Fir has small cones.

Big Leaf Maple (*Acer macrophylla*)

A water-loving deciduous tree found in forest canyons. It is related to the Sugar Maples of the East, but we do not get syrup from ours. It has winged seeds which fly (like helicopters) instead of just falling to the ground. This gives the seeds a better chance of surviving because they can move away from the parent tree.

Black Oak (*Quercus kelloggii*)

A deciduous oak with lobed leaves and rough dark bark. The acorns of this tree were preferred by the local Indians for food. The best known type of Mistletoe grows on Black Oaks.

Canyon Live Oak (*Quercus chrysolepis*)

An evergreen with bicolored leaves, shiny and dark on top, dull and lighter underneath. The acorns have large solid caps with golden hairs inside. Acorns are food for many forest animals including squirrels and jays.

Coulter Pine (*Pinus coulteri*)

This pine is also found in sheltered sites in the Chaparral. It has long gray-green needles in bundles of 3 and large heavy cones. Its nickname is the Widow-maker because of a story that a ranger was killed by a falling Coulter Pine cone, thereby making his wife a widow.

Incense Cedar (*Libocedrus decurrens*)

A large evergreen tree with reddish-brown bark and scale-like leaves in flat sprays. The bark contains tannins which make it slightly fire and insect resistant. It is a conifer with small cones that are shaped like a fleur-de-lis.

Lichen

Usually found on rocks and bark where few other plants can grow. Lichen is algae and fungi growing together in a symbiotic relationship. The fungi house the algae which are green and provide food through photosynthesis. Lichen is seldom found in cities because it is sensitive to smog and smoke.

Mistletoe (*Phorandendron spp.*)

A partial parasite living on many forest trees. Different types of mistletoe live on different trees. Mistletoe is a green plant and makes some of its own food, but it does take water and some food from the host tree. This is why mistletoe can weaken or even destroy a tree.

Moss

A small primitive plant found in moist shady places. Some mosses were used by the Indians to dress wounds. This was effective because moss produces mild acids which kill some bacteria and prevent infection.

Ponderosa Pine (*Pinus ponderosa*)

A large pine with "jigsaw puzzle" bark and three needles to a bundle. It has small prickly cones. Ponderosa Pine is a favored tree for lumber because it grows very straight and tall with a wide girth.

Sugar Pine (*Pinus lambertiana*)

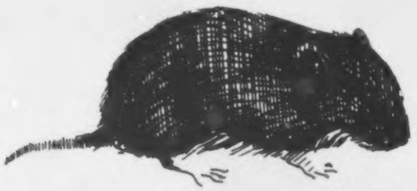
A pine with short needles in bundles of five and long slender cones. It is not common around camp but a few trees may be found in the area.

Sword Fern (*Polystichum munitum*)

A simple fern resembling the common house plant, the Boston Fern. Many of the fronds have spores resembling brown dust on their undersides. The developing frond is called a fiddlehead and is edible.

White Fir (*Abies concolor*)

An evergreen tree with short needle-like leaves and rough gray bark. The young trees have well-ordered layers of branches resembling an ideal Christmas tree. The age of these trees can be estimated by counting the whorls of branches.



CALIFORNIA VOLE

GEOLOGY TRAIL

RELATED LEARNINGS

Mountain Building Processes

1. Folding - When pressure from two directions causes buckling, a "bend" in the earth occurs. The San Bernardino Mountains were formed by folding.

2. Faulting - When observable displacement (shifting) of a break in the earth's crust occurs. Major faults are generally caused by earthquakes. The eastern slope of the Sierra Nevadas is a good example of a fault scarp (the displacement).

3. Volcanism - Magma (molten rock material) rises towards the earth's surface through a weakness in the crust. A volcano occurs when the magma breaks through the surface. When the crust is pushed upward but the magma does not break through it is called doming.

Continental Drift

The earth's crust is composed of at least thirteen major ridged plates. These plates are in constant motion. The San Andreas Fault is the boundary between two of these plates: the Pacific plate, on which Southern California is located, and the North American plate, which supports the rest of the United States. The motion of these two plates with respect to each other has caused stresses responsible for the faulting, folding and volcanism which shaped the land. Southern California will always have active faults and earthquakes because we live on the edge of a moving plate.

Three Major Classifications of Rocks

1. Sedimentary - Rocks are broken down into fragments which are transported and deposited elsewhere by water. These deposits harden to form sedimentary rock.

2. Igneous - Formed at high temperature from molten rock beneath the earth's surface.

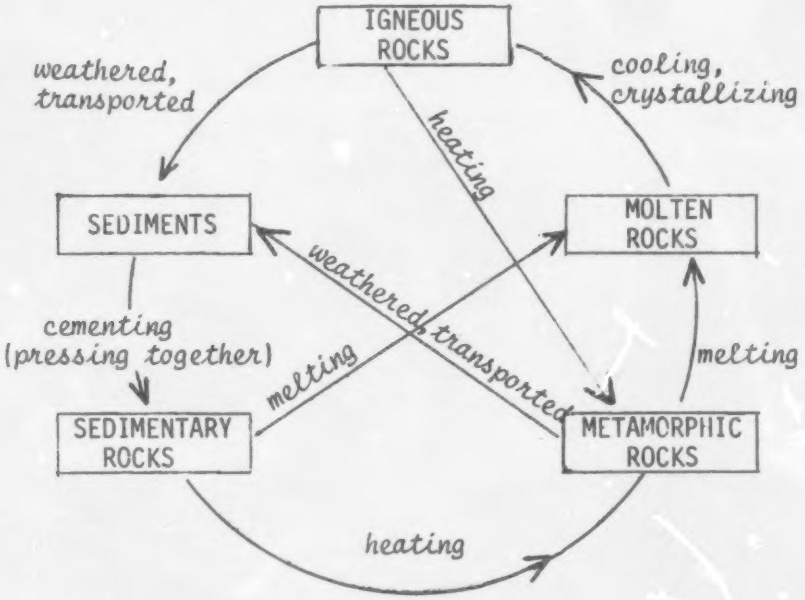
   a. Intrusive - cooled beneath the earth's surface. Crystals are usually large enough to be seen with the naked eye.

   b. Extrusive - cooled on the surface. A magnifying glass or microscope is needed to observe the crystals. Lava rock and pumice are examples.

3. Metamorphic - Rock changed by heat, pressure, and chemical action into new forms. This occurs deep in the earth's crust. Examples are: gneiss, schist, and marble.

Rock Cycle

The three major classifications of rocks are related through the changes that form them.


IGNEOUS ROCKS
weathered, transported
cooling, crystallizing
heating
SEDIMENTS
MOLTEN ROCKS
weathered, transported
cementing (pressing together)
melting
melting
SEDIMENTARY ROCKS
METAMORPHIC ROCKS
heating

Weathering

Weathering is the process of breaking down rock.

1. Physical weathering - involves breaking down rock into smaller and smaller pieces. Forces that accomplish this are:

   Changing temperatures - The alternate expansion and contraction of rock with changing temperatures can cause it to crack (especially heat from lightning and fire).

   Plants - Roots growing in cracks exert pressure which enlarge the cracks.

   Water - The alternate freezing and thawing of water enlarges cracks due to the expansion and contraction of water.

   River Action - Flowing water causes rocks to tumble against one another.

2. Chemical weathering - changes the nature of the rock through chemical actions.

   Plants - Water and carbon dioxide from the air or from plants combine to form a mild acid which dissolves and discolors rock.

   Oxidation - A process where compounds (usually containing iron) change form aided by the presence of oxygen. Rust is oxidized iron. When iron contained in rocks oxidizes, it turns red or yellow.

Local Gold History

W. F. "Uncle Billy" Holcomb found gold in a valley near Big Bear in May of 1860. News of this discovery caused prospectors to rush to Holcomb's Valley, traveling by mule to the headwaters of the Santa Ana River and over the mountains to get there. Small towns grew up around the successful operations in the valley (miners earned five to ten dollars a day!) and an access road was built. Working the mines was soon hindered by heavy snow in winter, the start of the Civil War, and a growing population of outlaws. However, the miners still managed to take out enough gold to support themselves. The Holcomb Valley district produced enough gold to encourage prospecting in other parts of the San Bernardino Mountains and Mill Creek Canyon was one of these locations. Occasionally, abandoned equipment is found in the streambed as well as small amounts of gold. However, the source of the gold remains undiscovered.

SUGGESTED ACTIVITIES

Identifying Rocks and Minerals

Use hand lenses and the rock board to identify rocks and minerals from the streambed. The hand lenses will allow students to observe the minerals that compose the various rocks. Allow them to keep only a few pocket-sized rocks.

Use of Rock Hammers

A rock hammer is a tool used by a geologist. The pointed end is used to dig rocks out of the earth. Since weathering can change the appearance of a rock it is helpful to break the rock open to identify it. The flat end of the hammer is used for this. The best way to break a rock open is to place it on a larger flat rock and strike it at a weak point (a crack or a thin area). Safety goggles must be worn when using the hammers to prevent eye injury from rock chips.

Panning for Gold

The gold in our stream is primarily found in small flakes. Whenever the stream slows down it drops some of the materials being carried. Places behind rocks or at bends in the stream where the stream slows have accumulations of sediments. This is where the gold will be found. Gold is heavier than most of the other minerals in the sediment. When panning, the basic idea is to wash away the lighter materials, leaving the gold behind. Start with enough sediment to cover the bottom of the pan and fill the pan with water. Pan with a circular or side-to-side motion allowing the water and lighter sediments to slosh over the sides of the pan. When there is only a small amount of sediment left in the pan, sift through it looking for flakes of gold. Gold will shine from all angles, appear gold-colored in sun or shade and bend rather than break.

LOCAL ROCKS AND MINERALS

Rock boards are available at Forest Home to aid in identification.

Igneous Rocks

Granite - Black and white; or pink and white. Granite is the most common rock found at the Outdoor School. Granite is used for buildings and fireplaces. It contains these minerals:

Feldspar - Pink with a pearly luster. Feldspar breaks down to form clay soils. These feldspar clays are used in the manufacture of ceramics.

Hornblende - Dark green to black and glassy. It appears rectangular when viewed through a hand lens. Hornblende is not commonly found in our granite.

Mica - Shiny black, bronze or silver; peels in sheets. The nearly transparent silver mica was once used as a substitute for glass.

Quartz - Clear or milky colored. Because of its hardness, quartz can usually be washed all the way to the ocean. It is one of the main ingredients of beach sand and is a very common mineral in the canyon.

Metamorphic Rocks

Epidote - A green mineral that forms in the cracks and seams of nearly every type of metamorphic rock.

Gneiss - A rock usually made up of black and white bands of mica and quartz. The heat and pressure below the earth's surface causes the minerals from granite to separate and flow into these bands.

Marble - A white crystalline rock that has changed from limestone. Marble is most commonly used for buildings, statues and sink tops. Marble reacts with acid which is a characteristic used to identify it. There is an old quarry farther up Mill Creek Canyon where marble was excavated and sold commercially.

Garnet - Deep red crystalline. A secondary mineral generally found in metamorphic rock. Garnets are used as semiprecious stones for jewelry or crushed to form abrasives (i.e. sandpaper). Garnet is the birthstone for January.

Schist - A crystalline, striated rock. The common one found at the Outdoor School is mica schist which is black.

Instrusions - Epidote and quartz are the minerals that usually form veins in other rocks in our area.

Mica Schist with a quartz intrusion - is known as a "lucky rock." If a person carries a small specimen with him it is supposed to bring good luck.

Quartz with a Epidote intrusion - was valued by some Indians and used in trade in a way similar to our use of money. At camp we call it a "money rock."

RIPARIAN TRAIL

RELATED LEARNINGS

Ecosystem

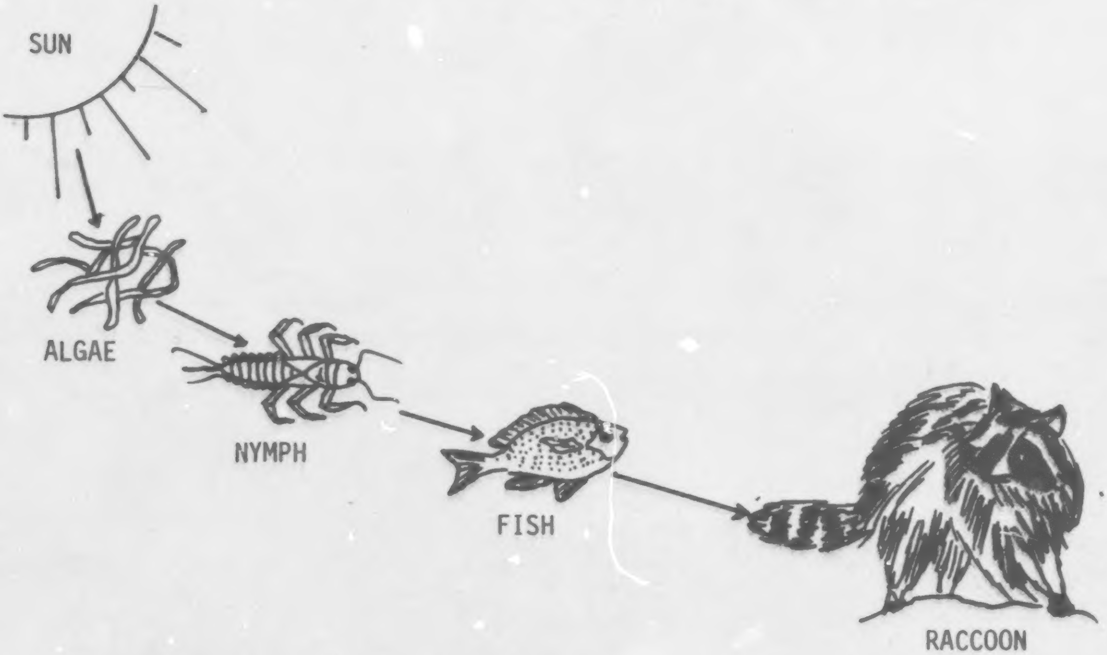
The Riparian environment is an ecosystem where plants, animals and non-living things interact. The Riparian trail provides an opportunity for students to observe and study the interdependent components of this ecosystem.

Interdependence

In any ecosystem many relationships occur between the plants, the animals, and the environment. These relationships are so intertwined that any element of the system cannot exist independent of the others. Because of this interdependence anything affecting one part of the system will ultimately affect the whole system.

Food Chain

A food chain links animals and plants together by "what they eat or who eats them." Green plants begin all food chains because they are able to make their own food using energy from sunlight. Plants are the *producers*. Animals cannot make their own food. They are dependent on other living things as food sources and are known as the *consumers*. Animals derive energy from food therefore food chains involve transfers of energy. Only a portion of the energy acquired by a link in the chain is transferred to the next link. Some is lost as heat energy. The remainder is used by each plant and animal for growth and movement.



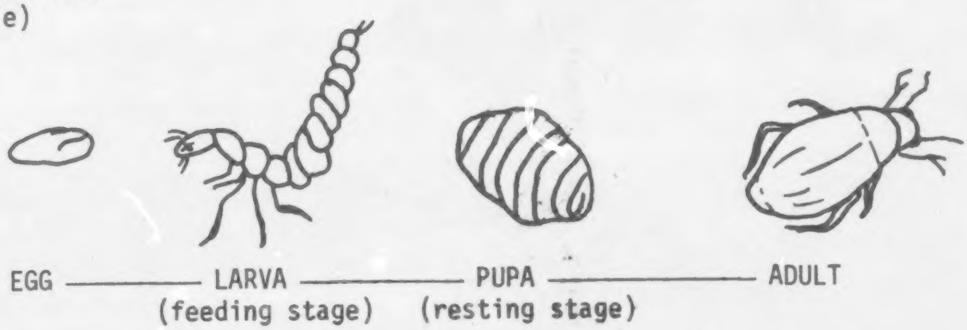
Plant Succession

Plant succession is the gradual replacement of one community of plants by another. The Riparian area is being encroached by a few varieties of forest trees, mainly Incense Cedar and Canyon Live Oak. If these trees survive long enough, local conditions may change just enough to allow other forest plants to become established. Eventually the Riparian plants could be replaced by the forest plants in this process. If the conditions are not changed greatly, forest plants will not take over and the area will either revert completely to Riparian or remain as a transition zone between the two.

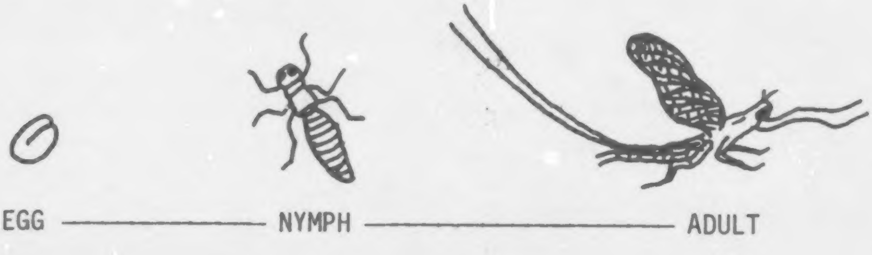
Insect Life Cycles

All adult insects exhibit certain characterisitcs. They have six legs and three main body parts; head, thorax, and abdomen. Most adult insects have wings. Insects have two main life cycles; Complete Metamorphosis or Incomplete Metamorphosis (also known as Simple Metamorphosis where wings have developed).

COMPLETE
METAMORPHOSIS
(Beetle)



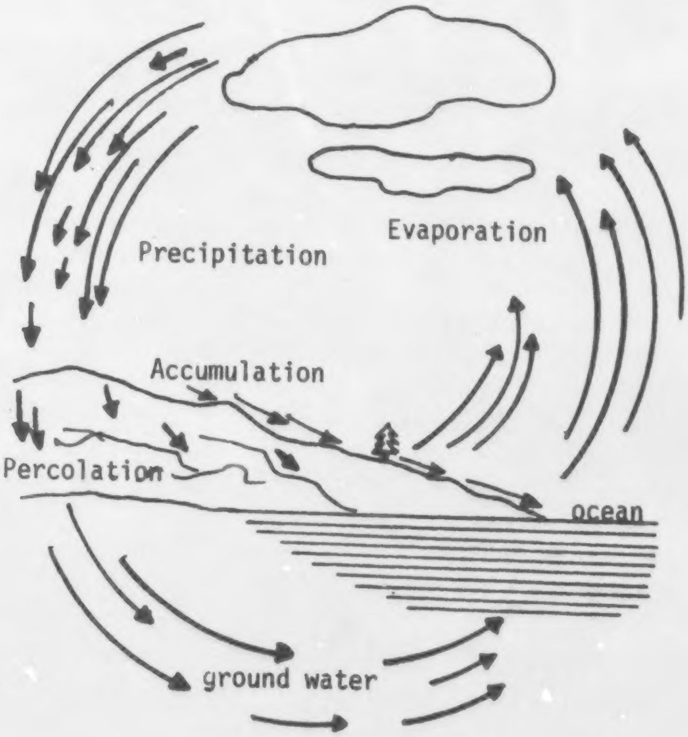
INCOMPLETE
METAMORPHOSIS or SIMPLE METAMORPHOSIS
(Mayfly)



In the stream we will mainly see larva and nymphs. Larva will have gills which allow them to breathe underwater. The adult insects have no gills.

Water Cycle

Water is continuously cycled on a global scale. The total amount of water in the world has not changed appreciably since the earth was formed.



Natural Resources

In the Riparian area the most important natural resource is water. Mill Creek joins the Santa Ana River, flows to Orange County, where most of the water slowly filters through the ground, and accumulates in wells. The quality of the water in Mill Creek affects the quality of the drinking water in these wells.

Weather Prediction

Different atmospheric conditions interact to form the weather. To some extent, weather determines what you do at the Outdoor School (i.e., what you wear, the types of activities available). Measuring different atmospheric conditions helps people to predict the weather.

Weather instruments at the outdoor school:

Barometer - Shows the current air pressure and indicates any change from the previous day. When forecasting, the direction of change (rising or falling) is more important than the numerical value. The units on the outside scale are read in inches of mercury.

Hygrometer - Measures the relative humidity by percent. When it rains the relative humidity is almost 100% because the air is saturated with water.

Maximum/Minimum Thermometer - Shows the current air temperature (the mercury level) and the previous maximum and minimum temperatures (the lower levels of the blue needles). The units are in degrees Farenheit. For a Celsius reading use the standard thermometer.

Rain Gauge - Shows the amount of precipitation in inches.

Beaufort Wind Scale - This chart provides a means of estimating wind speed in miles per hour through direct observation.

Prediction Chart - This simple chart provides a way to forecast the weather using readings from the weather instruments and observing clouds and wind direction.

Man's Impact

The Riparian trail is heavily used by people. This is made evident by litter, trampled plants, and initials carved on trees. An impact that is not obvious is the pollution in Mill Creek. The town of Forest Falls has contaminated the creek, primarily with sewage from seeping septic tanks. The pollution, along with other factors has resulted in water unsafe for human consumption, fewer fish, and an increase in algae and watercress who thrive on the increase in nutrients.

SUGGESTED ACTIVITIES

Aquatic Insects

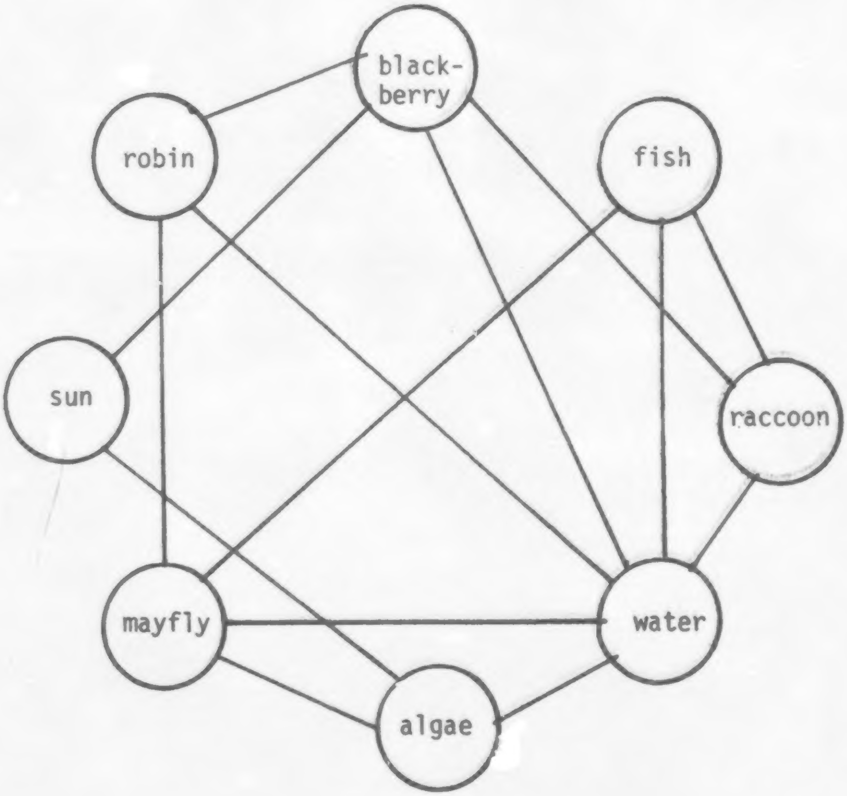
Using the nets and containers find and collect insects. A good way to find insects is to pick up rocks and wood and look on the undersides. Be sure to carefully replace any rocks or wood picked up; these provide homes for the insects. Put all the insects collected in a large white container for observation. Identify the insects and try to discover what they eat and who eats them (i.e., how they fit into the food web). Replace all insects at the end of the activity.

Animal Evidence Investigation

You can find many signs of animal life along the Riparian trail. Examples are: bird nests, sapsucker marks on Alder trees, acorn woodpecker storage trees and nest holes, animal tracks in sandy areas or in snow and the animals themselves. Animals that will probably be seen are: the aquatic insects, Alligator Lizards, Western Fence Lizards and Gray Squirrels. Acorn Woodpeckers and Robins are birds most commonly seen.

Web of Life

This is a game designed to show the complexity and interdependence of an ecosystem. The students represent living and non-living components of the Riparian ecosystem and build a web (with a ball of string) based on relationships between these components. The equipment and instructions are available at Outdoor School.



Weather Station

Explain each instrument at the weather station then have the students read and record the data. Using this data and the prediction chart, the group should make a weather forecast for the next 24 hours.

Sensory Awareness

Have the children sit quietly in a secluded place, with their eyes closed and listen to the sounds of the environment. They should do this for at least one full minute then discuss what they heard. Various leaves can be crushed and passed around to compare their odors. Mint is a good plant for this activity. Please use only one leaf from each plant.

Self Expression

Have the students write about or sketch an area, a specific object or an incident that relates to the Riparian environment. Encourage them to use descriptive words and to express their feeling in writing. They should try to incorporate their feelings about the chosen subject in their sketches. Information on forms of poetry and sketching techniques are available at the Outdoor School.

PLANTS

Pressed specimens of these and other Riparian plants plus additional information about each plant are available at Forest Home.

Algae

Simple plants that live in water and contain chlorophyll. They lack true roots, stems or leaves.

Blackberry (*Rubus ursinus*)

A vinelike shrub with an abundance of thorns. The berries are a favorite of bears and birds as well as humans.

Currant (*Ribes nevadense*)

A thornless shrub with bright red edible berries. The early settlers made jelly from this fruit.

Mint (*Mentha spp.*)

A pleasant smelling plant found near water. It has square stems and opposite leaves (the leaves come out in pairs). Mint is often used to flavor foods (i.e., tea or gum).

Mugwort (*Artmesia douglasiana*)

An abundant plant with leaves that are green on top and silvery underneath. The Indians used mugwort as a cure for the pain and itch of stinging nettles.

Stinging Nettles (*Urtica gracilis*)

A plant to be wary of! It has opposite leaves with serrate (sawtooth) margins. It is covered with hairs that cause the skin to sting and itch when touched.

Watercress (*Rorripa nasturtium-aquatica*)

Found directly in the water of slow streams and pools. It is edible and has a taste resembling radishes.

White Alder (*Alnus rhombifolia*)

The dominant tree near streams. It has white or gray bark and seed pods which resemble small pines cones.

Wild Rose (*Rosa woodsii*)

A thorny shrub with showy pink flowers. Rosehips are a good source of vitamin C .

ANIMALS

Amphibians and Reptiles

Alligator Lizard - a large lizard, gray-brown or olive green with dusky brown crossbars on top, gray to yellowish underneath.

Alligator Lizards feed on slugs, insects, scorpions, and spiders. When caught they generally attempt to bite, but they are not poisonous. Their tails are easily broken off.

California Newt - tan to dark brown above, orange below with a long tail, large eyes, and rough skin.

Newts live near streams in moist places under rocks and logs. They enter the water to breed and lay eggs. Newts eat worms, slugs, and insects. They secrete a poison through their skin which protects them from most predators. This poison is irritating to the human eye so care must be taken when approaching them.

Gopher Snakes - dull yellow or cream with black, brown or red-brown blotches.

The gopher snake is often mistaken for a rattler because of the similarities in markings as well as the behavior of hissing and vibrating its tail when alarmed. They are good climbers and burrowers. They eat mice, gophers, squirrels, birds, bird eggs, and lizards.

Garter Snakes - usually striped.

They are the most aquatic of the snakes around the Outdoor School area. Garter Snakes are diurnal (awake and active during the day). They eat worms, slugs, insects, birds and bird eggs.

King Snakes - moderate sized snakes with glossy skins; the Common King Snake has dark brown, white or pale yellow bands; the Mountain King Snake has black, white, and red bands.

They kill by constriction and eat snakes (including rattlers), lizards, eggs, rodents, and birds. They are found on both sides of the canyon at camp.

Racers - diurnal, fast-moving, smooth-scaled snakes. This group includes the Racer: brown or olive above, yellow below, and the Striped Racer; black or dark brown with yellow or cream stripes.

When hunting, racers hold their heads above the ground. They eat lizards, mice, birds, and bird eggs and insects which they capture by ambush or pursuit. They are located on the Chaparral side at Forest Home but are rarely encountered.

Rattlesnakes - heavy-bodied, venomous snakes with a rattle at the tip of the tail.

Rattlesnakes usually forage at night but are also abroad in the daytime. They ambush their prey and use temperature sensitive organs located between their eyes and nostrils to aid in directing their strike. They eat rabbits, squirrels, gophers, wood rats and mice. Rattlesnakes are found in the Chaparral but are rarely encountered.

Spiny Lizards - the "blue bellies." Most males have blue patches on the belly and throat.

Spiny lizards have pointed scales on top giving them a rough, spiny appearance. They are often seen basking on top of rocks or stumps in the full sun. They eat insects, spiders, and centipedes. This group includes the Western Fence Lizard, Sagebrush Lizard, and Granite Spiny Lizard.

Western Skink - a lizard with smooth, shiny scales, dark and light stripes and a dull blue tail.

Young skinks have a bright blue tail. Skinks eat insects and spiders.

Western Toad - gray or greenish with dark blotches and warts.

Toads are found near ponds or slowly flowing streams where they breed. A mild poison is secreted by the warts which repels some predators and can irritate human eyes. They eat insects, slugs, and spiders. They are nocturnal and diurnal but a few have been seen at Forest Home.

Birds

Anna's Hummingbird - a small, irridescent green bird with a long thin bill. The male has a bright red crown and throat.

Hummingbirds sip nectar from tubular flowers, always hovering as they feed. Their wingbeats are so rapid that it produces a humming sound. They are the only birds who can fly backwards.

Acorn Woodpecker - a black-backed woodpecker with black, white, and red face markings.

Acorn Woodpeckers live in small flocks and store acorns in the bark of trees. The flock will defend these trees from other animals. They eat acorns, sap and insects.

Band-tailed Pigeon - a large gray pigeon with a pale, broad band across the end of the tail.

Band-tailed Pigeons are commonly seen flying in small groups or perched in the tree tops at Forest Home. They eat seeds, acorns and fruit.

Bullock's Oriole - The male is orange and black with white wing patches; the female is olive green and yellow.

Orioles are first seen in the spring, when they move up from lower elevations.

Orioles eat insects, fruit, and grain.

Common Flicker (or Red-Shafted Flicker) - a jay-sized woodpecker with a brown back and spotted underparts. It shows salmon-colored wing and tail linings in flight.

They are commonly seen around Rancho site, on the ground as well as in the trees. They eat insects, especially ants, and sap.

Dark-Eyed Junco - a small rusty brown bird with a black head and white tail markings.

Dark-Eyed Juncos are commonly seen in small flocks on the ground searching for seeds.

Dipper - a plump, black bird with a short, stubby tail.

Dippers are found around mountain streams where they dive, swim, and walk on the bottom in search of aquatic insects.

Golden Eagle - a very large, dark brown bird with a 6-7 foot wingspan.

At the Outdoor School, Golden Eagles are occasionally seen soaring above San Bernardino Ridge searching for rabbits and large rodents. Golden Eagles are becoming scarce as more and more people are moving into formerly wild areas. They mate for life, and a pair requires a large range in which to hunt, as well as an undisturbed nest site in order to successfully raise young.

Great Horned Owl - a large dark owl with ear tufts.

Great Horned Owls are occasionally seen and heard at dusk on the forest side of the valley. They are nocturnal and eat small mammals. Owls have a special feather structure which allows them to fly silently.

Mountain Chickadee - a small gray bird with a black cap and throat.

Mountain Chickadees are found in the forest where they actively forage for insects on the branches of conifers. Chickadees are solitary in the spring but travel in mixed flocks with Nuthatches, Juncos and Kinglets in the fall and winter.

Mountain Quail - a brown and gray ground bird with a plump body and a long straight head plume.

Mountain Quail are occasionally seen in the Chaparral and in quiet spots at the Rancho site. They eat insects, seeds, buds, and berries.

Red-tailed Hawks - a large, broad-winged hawk with a rusty red tail and light underparts.

Red-tailed Hawks are often seen perched on poles and treetops or soaring above the ridges. They eat lizards, squirrels, wood rats, and mice.

Robin - a large bird with a slate gray back and a brick red breast.

Robins are often seen under trees searching for insects and worms. They also eat fruit when it is available.

Scrub Jay - a crestless blue jay with a brown patch on its back and pale gray underparts.

The Scrub Jay is found in the Chaparral.

Stellar's Jay - a large blue bird with a black head and crest.

Stellar's Jays are found in the forest and around the Outdoor School where they forage for acorns and food scraps left by people.

Violet-Green Swallow - glossy purple and green above and white underneath with white rump patches.

The Violet-Green Swallow is an excellent flyer with long, pointed wings. They eat insects which they catch in flight. They are generally seen on the south facing slopes and are most active when insects are prevalent.

Western Bluebird - males have a blue head, wings, and tail and a rusty red back and breast; females are paler and duller.

The Western Bluebird is a common bird on the south facing slopes. They prefer conspicuous perches in the tree tops or on high wires. They drop from these high perches to catch insects both in the air and on the ground.

Western Tanager - males are yellow with black wings, tail, and back, and an orange head.

Western Tanagers arrive in the spring. They eat insects and fruit.

Yellow-Bellied Sapsucker - a woodpecker with a black back, red head and yellow belly.

Yellow-Bellied Sapsuckers drill parallel holes in live trees then return to feed on the insects and sap. The birds are seldom seen but these Sapsucker marks are commonly found on the Alder trees in the area.

Yellow-Rumped Warbler - a black and white bird with a yellow rump, throat, and crown, in the winter they are brownish with a yellow rump.

Yellow-Rumped Warblers can be recognized at the Outdoor School by their behavior, (i.e., flying out from a tree, turning abruptly, then diving back into the foliage, as they catch insects in flight.)

Mammals

Badger

A stocky animal with a grizzled gray back, bushy tail, and black and white face markings. The Badger has strong forelimbs and long front claws which aid it in digging out its food consisting of ground squirrels, gophers, mice, and chipmunks.

Bats

The only mammals capable of true flight. They are nocturnal and eat insects which they capture in flight. Bats do not rely on their eyes when flying at night. Instead they emit high-pitched sounds which are bounced off nearby objects. The Bat uses these echoes to navigate. Bats can occasionally be seen or heard at camp during fall or spring evenings.

Bighorn Sheep

Yellow-brown to gray-brown on top with a white rump and underparts. The ewes have small, slightly curved horns and the rams have large spiralled horns. Bighorn Sheep live in rugged country which provides good visibility and little competition from other grazing animals. The steep rocky slopes at the head of Mill Creek Canyon are the habitat of the Bighorn Sheep in our area.

Black Bear

The Black Bear is probably the most easily recognized mammal in California. Its color ranges from light brown to black. Although related to the carnivores, bears primarily eat plant material such as roots, fruits, nuts, and grasses, along with some insects, fish and small rodents. The Black Bear in our canyon seldom wander near camp, they seem to prefer going over the ridge to Oak Glen to eat apples.

Bobcat

A large cat with a short tail, pointed ears and gray to reddish fur with brown or black spots. Its habitat is the rocky Chaparral where it hunts gophers, squirrels, wood rats, mice and rabbits. The Bobcat is nocturnal but is known to sun itself in the afternoon.

California Ground Squirrel

Mixed gray-brown and sometimes spotted. They nest underground and eat seeds, nuts, and fruit. In the fall they can be seen actively feeding and gathering nuts in their cheek pouches. They use stored fat to provide energy during hibernation, thus needing a great quantity of food.

Chipmunks

Brown with light and dark stripes on their backs and the sides of their heads. Chipmunks eat seeds and nuts, live underground and hibernate in the winter. They store food for winter in large underground caches. They are diurnal, but are more often heard than seen because they stay near cover. Their call is a a repeated chirp accompanied by a tail flick which can be used to locate them.

Cottontail Rabbit

Mixed brown and black on its back with a white tail. Cottontails eat grasses, leaves, and fallen fruit such as acorns. They are eaten by Bobcats, Coyotes, Foxes, Hawks, Eagles, and large Owls.

Coyote

Grayish or tawny with a dark tip on the tail. Coyotes are nocturnal but are occasionally seen during the day. They frequent the Chaparral side of the canyon where their tracks and scat are often found. Rabbits, Squirrels, Gophers, and Mice are the main food sources of the Coyote.

Gray Fox

Smaller than a Coyote, blackish-gray above and rusty white below with a black-tipped tail. Foxes eat Gophers, Rabbits, Wood Rats, Mice and Quail and some plant materials such as manzanita berries. They live in the Chaparral and are rarely seen because they are nocturnal. However, their tracks and scat can be found.

Gray Squirrel

Silvery gray with a bushy gray tail edged with white. They have no cheek pouches, do not hibernate, and are diurnal. They are commonly seen around camp. They eat acorns and can be seen in the fall busily burying acorns in separate holes. They retrieve acorns using their sense of smell but some are missed which promote the growth of new oaks. The Gray Squirrel is a good climber and is relatively safe in the trees. Predators (bobcats, coyotes, large hawks, and owls) generally catch them on the ground.

Mice

There are many types of Mice found in our area. Pocket Mice, which resemble the Kangaroo Rats of the desert, Harvest Mice, the large-eared Deer Mice and Meadow Mice. They are all nocturnal and generally seed eaters. However, many Mice eat spiders and insect larva when it is available. Their predators are Owls, Hawks, Snakes, Weasels, Skunks, Coyotes, and Bobcats.

Moles

Black with a cylindrical body and sensitive snout and tail. They have small non-functional eyes and legs adapted for moving underground. Moles can easily move backward or forward in tunnels. Moles eat earthworms and some plant material. They are rarely seen because of their underground habitat.

Mountain Lion

A very large (6-8 feet long) tawny cat with a black-tipped tail. They are also know as Cougars, Pumas, and Panthers. Mountain Lions live and hunt in remote areas and their signs are seldom seen near human habitations. Their main source of food is deer but they also eat Bighorn Sheep and smaller mammals.

Mule Deer

Mule Deer tracks have been found on both slopes of our canyon although they prefer brushy areas to forests. They are browsers, eating the leaves of shrubs and young trees. Their primary predators are Mountain Lions and humans.

Pocket Gopher

Brown above and gray to white underneath with a short nearly naked tail. A Gopher's incisors are always outside of his mouth which allows him to use his teeth to dig as well as to eat. Gophers eat roots, grass stems, and seeds. In the natural environment gophers are beneficial by working the soil as they tunnel. At Forest Home these burrows are commonly seen in the oak woodlands on the south facing slopes. Gophers tend to be harmful only where their natural predators (hawks, owls, gopher snakes, weasels, foxes, and coyotes) are absent.

Raccoon

Grayish-brown mixed with black with a ringed tail and a black mask. Raccoons are very curious animals and like to handle things with their sensitive paws. They lose their fear of humans relatively easily and can become a nuisance by rummaging through trash cans and begging for food. They are active all year and at Forest Home live near and under the cabins. Raccoons are nocturnal and are often seen in camp.

Shrews

A small animal with a long pointed nose, small eyes and a scaly tail. They have a high metabolic rate and must eat nearly continuously to keep themselves alive. Shrews feed on insects, spiders and some plants. They are diurnal and nocturnal but are rarely seen.

Spotted Skunk

Black with irregular spots and stripes and a white tipped tail. The Spotted Skunk is the size of a small cat. When threatened it will raise its tail which then forms a conspicuous white rosette. This serves as a warning because it has scent glands at the base of its tail which will spray a powerful scent causing nausea and temporary blindness at close range.

Wood Rat

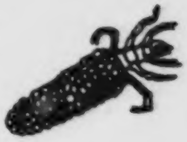
A rat-sized rodent, gray-brown and white below with a hairy tail. Wood Rats are populary known as Pack Rats because of their habit of collecting things such as jar lids, gum wrappers, tin cans, and whatever they can carry back to their nests. The nests are large piles of sticks under shrubs or in the lower branches of trees. These nests are commonly seen in the Chaparral. Wood Rats are nocturnal and eat acorns, seeds, roots, and fruit. They use prickly pear cactus as a source of water in the summer.

AQUATIC INSECTS

More information about these insects is available at Forest Home.

Caddisfly larva

Found attached to rocks in streams. They build protective shells of sand, pebbles, and bark around themselves and protrude from an opening at one end to feed.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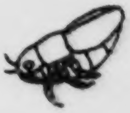
Diving Beetle

A shiny black beetle that is able to swim underwater. It carries a bubble of air under its wing covers which allows it to breathe while it swims.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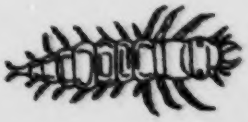
Hellgrammite

Fierce-looking larva of Dobsonflies. They are voracious carnivores and will eat any small aquatic life.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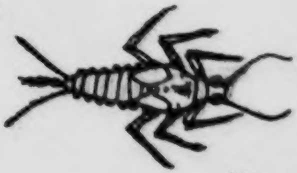
Mayfly Nymph

Lives under rocks in streams. The nymphs and adults are a favored food of trout. Mayfly adults live only 24 hours. In that time they must find mates and lay eggs. They have no stomach and do not eat during their adult life.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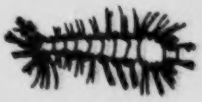
Mosquito

The larva are common in ponds and puddles but absent in streams. The adult female is the only one who bites mammals, requiring a blood meal before laying eggs.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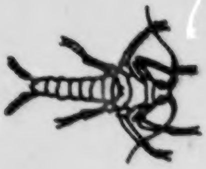
Stonefly Nymphs

Found most often in fast moving streams. They resemble Mayfly nymphs but have two-pronged tails, not three like the Mayfly.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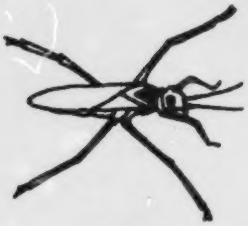
Water Strider

Found on the surface of ponds and pools. Surface tension allows them to skate about on the water and never get wet.



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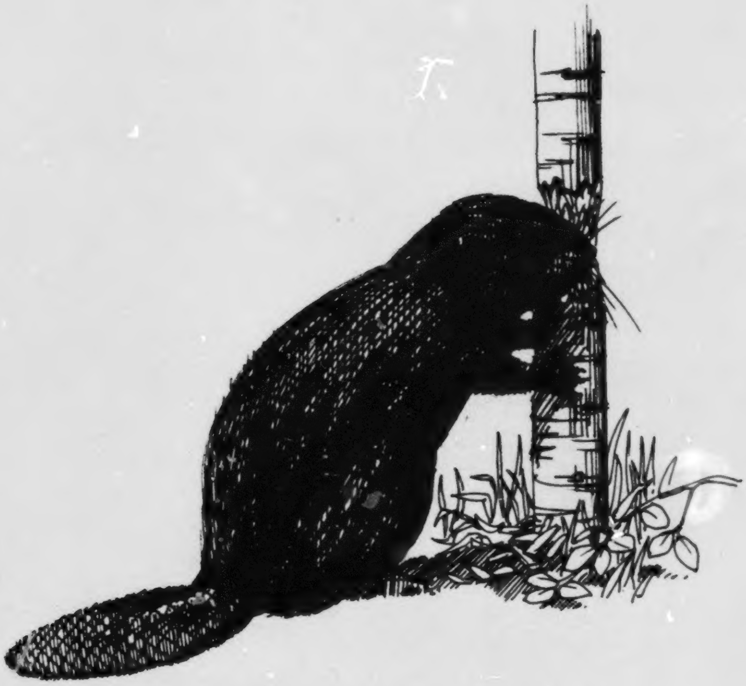

GLOSSARY

The particular definitions chosen relate specifically to the Outdoor School curriculum. Some words may have broader meanings in general use.

Accumulation	The collection of water into rivers, streams, lakes, and oceans.
Adaptation	A change in structure or habit of an organism that produces better adjustment to the environment.
Alga (singular) Algae (plural)	A simple plant that lives in water and contains chlorophyll. An alga lacks true roots, stems or leaves.
Amphibian	A cold-blooded vertebrate without scales, feathers, fur, or hair which has gills in the early stages of development.
Annual Ring	The layer of wood produced by the growth in a single year. (Also known as a growth ring.)
Aquatic	Living or growing in or on water.
Astronomy	The scientific study of heavenly bodies and their motions.
Atmosphere	The layer of gases surrounding the earth and other planets
Avalanche	A large mass of snow, ice, earth or rock moving swiftly down a mountainside.
Bacteria	Single-celled micro-organisms that lack chlorophyll.
Balance of Nature	A dynamic but delicate interplay of life forms and their physical environment.
Barometer	An instrument for measuring atmospheric pressure, used in weather forecasting.
Bedrock	The solid rock underlying the soil. It is also known as the parent rock material.
Biotic	Pertaining to life and living organisms.
Black Hole	An invisible collapsed star with a small diameter and an intense gravitational field.
Broadleaf	The term describing a plant with wide bladed leaves (i.e., Oak or Maple). Generally refers to flowering trees in contrast to conifers.
Cambium	The growth layer between the bark and wood on a tree.

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Canopy	An overhanging screen (i.e. treetops) which form the forest ceiling.
Carbon Dioxide/ Oxygen Cycle (CO_2/O_2 Cycle)	The interchange of carbon dioxide and oxygen between animals and plants.
Carnivore	Any chiefly flesh-eating animal. Contrast with herbivore.
Chaparral	The community of thick and often thorny bushes that grow on dry rocky slopes and in poor soil in California and Mexico. Examples: Buckthorn, Manzanita, Mountain Mahogany and Chamise.
Chlorophyll	The green coloring matter in plants which is essential for food manufacture through photosynthesis.
Climate	Average weather conditions of an area over a long period of time.
Comet	A celestial body with a glowing, nebulous head which orbits the sun. (It develops a long tail near the sun.)
Community	A group of plants and/or animals living together and depending upon one another in a given area. A community is usually defined by the dominant plants found in it (i.e., Chaparral, Yellow Pine Forest, etc.)
Competition	The interaction resulting from several organisms sharing an environment resource (in short supply).
Condensation	The process by which a gas is changed to a liquid.
Cone	The seed or pollen-producing structure associated mainly with pines, firs, and other needle-leaved trees. Male cones are usually small and produce pollen. The female cones are larger, woody and produce seeds.
Conifer	An evergreen shrub or tree that bears its seeds in true cones, such as pine, fir, spruce, etc.
Conservation	The wise use of natural resources with consideration not only for the present but for the future.
Constellation	A group of stars depicting an imaginary figure, usually from mythology.
Consumer	Organisms who prey on and ingest other organisms.
Continental Drift	The concept of continent formation through the process of slowly moving land masses.
Decidious	A term used to describe plants which shed all their leaves seasonally.

Decomposer	A plant or animal which feeds on dead material causing its breakdown into simpler forms.
Diurnal	Awake and active during the day. Contrast with nocturnal.
Dormant	A state of suspended activity.
Ecology	Scientific study of the relationship between organisms and their environment.
Ecosystem	An environment of any size where plants, animals and non-living things interact. All components are linked together through energy and nutrient flow.
Environment	All living and non-living conditions that affect the life of animals or plants at any point in their life cycle.
Epidote	A green mineral made up of Calcium and Aluminum. It generally forms thin crusts in cracks and seams of metamorphic rocks.
Erosion	The wearing away of earth or rock by air, water or changes in temperature.
Evaporation	The process by which a liquid is changed to a gas.
Evergreen	Remaining green throughout the year -- especially those trees that do not shed all their leaves in one period.
Extrusive Rocks	Igneous rocks that are cooled quickly on the earth's surface. Contrast with intrusive rocks.
Faulting	Fracturing the earth's crust with observable displacement.
Feldspar	A pink-white mineral found in granite and other rocks. Clays are formed from weathered feldspar.
Fern	A non-flowering primitive plant, feather-like in appearance which reproduces by spores.
Flower	That part of a seed plant comprising the reproductive organs and their coverings.
Folding	Pressure from two directions causing buckling in the earth's surface.
Food Chain	The transfer of food energy from the source in plants through a series of organisms eating and being eaten (i.e., sun-grass-steer-man).
Forest	A complex community of plants and animals in which trees are the most conspicuous members.

Fossils	Remains or impressions of plants or animals naturally preserved in rocks.
Fruit	The edible, pulpy mass covering the seeds of various plants.
Fungus (singular) Fungi (plural)	A plant without chlorophyll that cannot make its own food. It can live on dead or living material.
Galaxy	A large system made up of billions of stars that are usually arranged in a spiral or ellipse.
Gall	A growth on plants caused by insects or parasitic fungi.
Garnet	A deep red crystal found in igneous and metamorphic rocks. Used as a semiprecious stone in jewelry.
Geology	The study of the structure of the earth, its history and the forces that affect it.
Gneiss	A metamorphic rock, generally made up of bands which differ in color and texture.
Granite	An igneous rock composed chiefly of feldspar, quartz, mica and hornblende.
Habitat	The region where a plant or animal naturally lives.
Herbivore	Any animal that primarily eats plants. Contrast with carnivore.
Hibernate	To spend the winter in a resting state where all body processes slow down.
Humidity	The content of moisture in the atmosphere at a given time.
Humus	The dark brown substance in soil formed by the decay of plants and animals.
Hygrometer	An instrument for measuring the relative humidity (amount of moisture) in the air at a given time.
Igneous Rocks	Rocks formed by the cooling and hardening of molten material.
Insect	An invertebrate whose adult stage has three body segments, three pairs of legs, and usually wings; the most numerous animal on earth.
Interdependence	Reliance of two or more living things upon one another for survival.

Intrusion	Igneous rock that invades older rock through weaknesses; usually appears as a ring or band.
Intrusive Rocks	Igneous rocks that are cooled slowly beneath the earth's surface (i.e. granite). Contrast with extrusive rocks.
Invertebrates	The lower and simpler form of animals having no backbone.
Larvae (plural) Larva (singular)	The feeding stage in the insect life cycle of complete metamorphosis.
Lichen	A plant combining fungi and algae living together in a partnership (symbiosis).
Life Cycle	The developmental sequence of a living thing.
Light Year	The distance light travels in a year at a speed of 186,000 miles per second.
Limiting Factor	The physical factor that is important in restricting animals or plants in that environment.
Litter	The dead leaves, branches and other plant and animal remains that form the top layer of the forest floor.
Magma	Molten rock material.
Mammal	A warm-blooded vertebrate animal with hair. The female nurses its young.
Marble	A metamorphic rock crystallized from limestone.
Metamorphic Rocks	Rocks that have undergone a change through heat and pressure.
Metamorphosis	The change in the physical form of an insect as part of its development.
Meteor	A stony or metallic piece of matter that enters the earth's atmosphere. (Sometimes called a shooting star or falling star.)
Mica	The shiny, black or transparent mineral found in granite. Mica separates readily into thin sheets.
Milky Way	The galaxy of which the sun and our solar system are members. Part of it appears as a streaky, hazy light in the sky.
Mineral	Any inorganic substance that has a definite chemical composition and crystalline structure. (Some minerals can combine to form rocks.)

Moss	A simple non-flowering green plant which reproduces by spores. Moss grows on rocks, wood,and in moist places.
Natural Resources	Materials found in nature that are used by man,(i.e., sunshine, air, water, soil, minerals, forest, wildlife, etc.)
Natural Selection	A process that causes the survival of indiviudals or groups best adjusted to the conditons under which they live.
Nocturnal	Awake and active during the night.
Nova	A sudden outburst of light from a star as its outer shell of gases is blown away.
Nutrients	Minerals and vitamins needed by living things.
Nymph	The immature stage in the life cycle of an insect undergoing incomplete or simple metamorphosis.
Omnivore	An organism that feeds on plants and animals.
Orbit	The path in space along which a heavenly body revolves about another. Also, one complete revolution of a body on such a path.
Organism	A living thing. plant, or animal.
Parasite	A plant or animal which takes its food from another living thing (its host). A parasite is usually harmful to its host.
Parent Rock	The solid rock and rock fragments that underly the soil. Also know as Bedrock.
Percolation	Filtering of water through soil and rocks into the ground.
Photosynthesis	The process by which green plants utilize sunlight in making food (mainly carbohydrates) from carbon dioxide and water.
Pistil	The seed-bearing part of a flowering plant.
Planets	Natural satellites that move around the sun in nearly circular paths (orbits).
Pollen	The male reproductive dust from the stamen.
Pollination	The transfer of pollen from the stamen to the pistil. This fertilizes the plant and allows it to produce seeds.

Pollution	Harmful substances deposited in the air, water or on land, leading to a state of dirtiness, impurity or unhealthiness.
Precipitation	Water deposited on the earth in various forms such as rain, sleet, snow, hail and mist.
Predator	An animal that hunts and kills other animals for food.
Prey	An animal that is hunted by another.
Producer	An organism (as a green plant) which produces its own organic compounds. A food source for other organisms.
Protozoans	Any number of one-celled animals, usually microscopic belonging to the lowest division of the animal kingdom.
Pupa	The resting stage in the insect life cycle of complete metamorphosis.
Quartz	A common mineral containing silicon that is usually white or opaque.
Reproduction	The means by which living things produce more of their own kind and keep their species alive.
Reptile	A cold-blooded, airbreathing vertebrate covered with scales or bony plates.
Riparian	Plants or animals living or located along the banks of streams, rivers or other bodies of water.
Rock	A material composed of one or more minerals.
Rock Cycle	The continual formation of igneous, sedimentary and metamorphic rock through the processes of melting, cooling, crystallization and weathering.
Rotation	The act of turning on an axis or center. One complete rotation of a planet equals one planet day.
Satellite	A smaller body revolving around a larger one.
Scat	Animal droppings. Scatology is the study of animal diet through examining scat.
Scavenger	An animal which eats dead animals or plants.
Schist	A metamorphic striated rock with cleavage along parallel planes.
Sedimentary Rocks	Rocks formed from materials moved from one place to another and deposited in water. Sedimentary rock usually appears layered.

Slope Effect	The environmental effect caused by the orientation of the sun upon different slopes.
Snag	A standing dead tree from which the leaves and most of the branches have fallen.
Soil	Finely divided rock material mixed with decayed plant and animal material. Soil is the medium in which plants grow.
Soil Cycle	Nutrients contained in organic layers of soil promote growth of living things, are decomposed, and recycled through the growth process.
Soil Compaction	To increase the density of soil through impact on the surface layers.
Solar System	The sun and all the dependent bodies that revolve about it.
Spore	The reproductive body of a fern, moss, or fungus.
Stamen	The male or pollen-bearing part of a flower.
Star	A large glowing ball of hot gases.
Substrate	The medium on or in which an organixm lives.
Succession	The gradual replacement of one community by another.
Sun	The yellow star which is the center of our solar system.
Supernova	The explosion of a massive star. A high percentage of the star's mass is blown away accompanied by a burst of light that may be millions of times brighter than the star.
Switchback	A zigzagging turn in a road or trail in a mountainous area.
Symbiosis	A special relationship between two living things. Usually both organisms benefit and need each other to survive.
Transpiration	The process by which water evaporates from plant tissues.
Transverse Range	A mountain range lying at right angles (east-west) to the more commonly found ranges running north and south.
Vertebrates	The higher and more complex form of animals having a backbone, such as fish, amphibians, reptiles, birds, and mammals.

Volcanism	Magma (molten rock) breaking through the surface (volcanos) or pushing up the earth's crust (doming).
Water Cycle	The recycling of water through evaporation, condensation, percolation, and precipitation.
Watershed	A region or area drained by a stream or river.
Weather	The condition of the earth's atmosphere at a given time and place.
Weathering	The process of breaking down rock by such forces as water, ice, chemicals, growing plants, and changing temperature.
Whorl	A pattern of leaf or branch arrangement where three or more leaves or branches orginate.
Wilderness Area	An area set aside by the government for the preservation of natural conditions for scientific and/or recreational purposes.

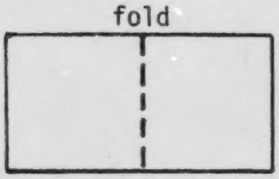
SPECIAL
CLASSROOM ACTIVITIES

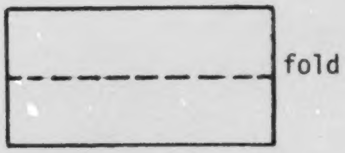
STUDENT FOLDER

DIRECTIONS:

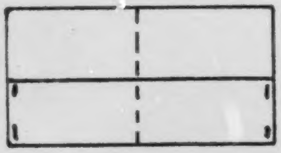
To make a simple construction paper folder to hold activity materials, use two sheets of 12" x 18" construction paper.

1. Fold one sheet of paper vertically; fold the other horizontally.





2. Place the horizontally folded sheet at the bottom of the vertically folded one.

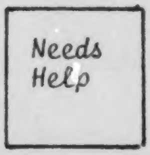


Staple the outside edges of the folder to form pockets. Crease the vertical fold firmly and fold the papers in half. You now have four pockets: one front pocket, one back pocket, and two inside pockets.

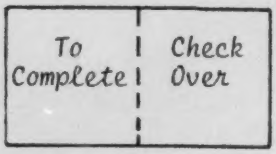
3. Possible uses for the folder:
   - to store research related to the major concepts, definitions for vocabulary words, social expectations, "the Personality Person"
   - to store student activity sheets

4. Suggestion: label the pockets

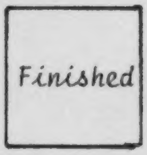
FRONT POCKET



INSIDE POCKETS



BACK POCKET



STUDENTS MAY GET HELP WHEN THEY NEED IT AS "WORK IN PROGRESS" AND "COMPLETED WORK" IS EASILY IDENTIFIED BY PLACEMENT IN THE APPROPRIATE POCKET.

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FORMAT FOR STUDENT LOG BOOK

(To be used at Camp)

Date __________

Weather:

Special Activities;
1.
2.
3.
4.

Animals and Birds Seen:
1.
2.
3.

Evening Activities
1.
2.
3.

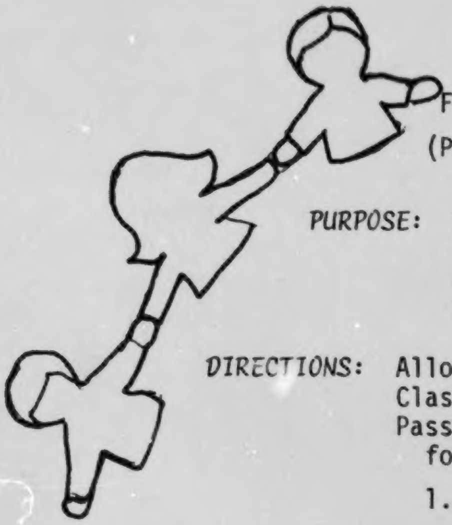
Morning Hike: ______________

What I Learned:
1.
2.
3.
4.
5.
6.
7.

Afternoon Hike: ____________
1.
2.
3.
4.
5.
6.

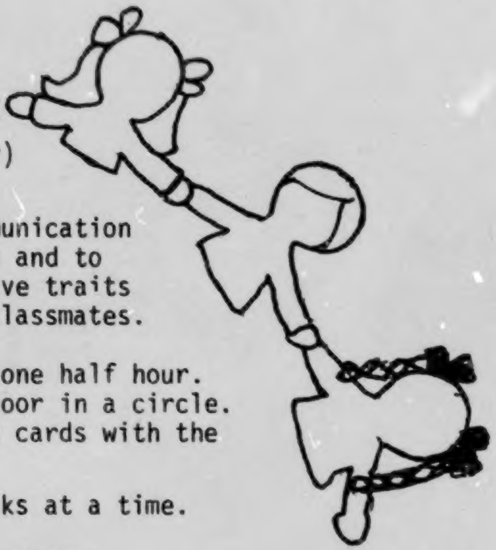
SUGGESTED TOPICS FOR STUDENT JOURNAL

1. Observe animals along the trails. Try to draw simple line drawings of them below
   - Riparian
   - Forest
   - Chaparral
   - Geology
2. Describe some of the special sounds you heard on your trail today.
   - Riparian
   - Forest
   - Chaparral
   - Geology
3. Describe some of the special smells you smelled on your trail walk today.
   - Riparian
   - Forest
   - Chaparral
   - Geology
4. Find examples of 4 of the following things found at the Outdoor School and write a brief description
   - amphibian
   - parasite
   - symbiosis
   - conifer
   - community
   - ecosystem
5. Write about your favorite hike and why you liked it.
6. Write about your favorite evening at camp.
7. What was one of your funny cabin experiences?



FRIENDSHIP CIRCLE

(Pre-camp Activity)



PURPOSE: To increase communication between students and to emphasize positive traits and talents of classmates.

DIRECTIONS: Allow approximately one half hour. Class sits on the floor in a circle. Pass out 3 x 5 index cards with the following rules:

1. One person talks at a time.
2. No side conversations.
3. No put-downs.
4. Everyone has a turn.
5. You may say, "please come back" if you're not ready when it is your turn.

(Use rule cards only for the first few times the circle meets.)

Teacher explains that, "In a friendship circle you may:

> Give a compliment to a member of the circle, ask for a compliment, or give yourself a compliment."

The first few times the circle meets, try the first two suggestions; (giving a compliment and asking for a compliment). Follow-up with a circle where everyone gives themselves a compliment. The skill of complimenting one's self without bragging is important as students need to recognize their good qualities rather than focusing attention on areas needing improvement. The compliments may be general or specific.

EXAMPLES:

> "I'd like to compliment Richard because he is a quiet worker."
> "I'd like to compliment Meredith because she played dodge ball well at lunch today."
> "I'd like to compliment Cheryl because she went to the nurse's office with me when I fell and cut my knee."

The quality of the compliments will improve with the experience of giving them and encouragement from the teacher. The circle may also include the following topics:

The thing I liked best today was ____________.
The thing I want to improve is ____________.

If I could only keep one thing I would keep ___________.
The way I feel when I lose a game is ____________.
The way I feel when I win a game is ______________.
One thing I'm looking forward to about going to Outdoor School is ______________.
One thing that worries me about going to Outdoor School is ________.

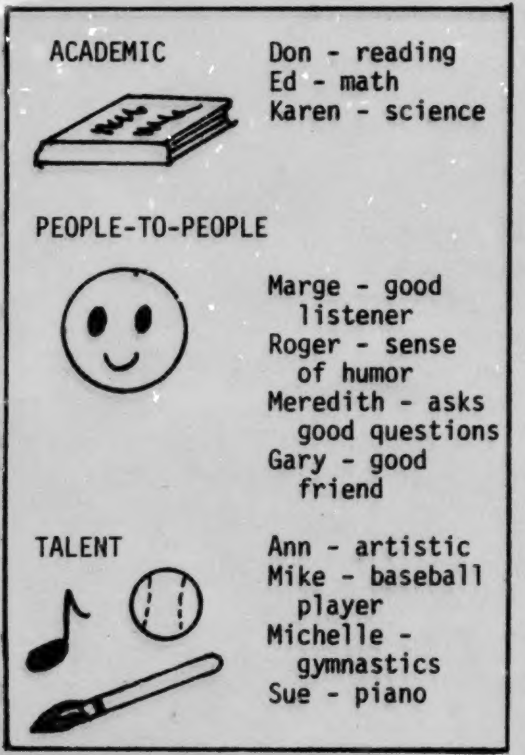
SUGGESTIONS:

Include topics that will encourage students to share (i.e., improvements, concerns). The second time the circle meets, have the group members offer suggestions for positive solutions to concerns previously expressed.

One circle can be devoted to identifying individual skills. The teacher introduces the concept by saying that "Our compliments today will either tell about a person's academic skills (good in spelling, reading, etc.), talents (playing the piano, sports, hobbies) or people-to-people skills (good listener, enthusiastic, works quietly). The teacher records the name and compliment then makes a ditto to share with the class. The next day the students select people they might like to work with based on information gained in the previous circle meeting.

EXAMPLES OF:

FINISHED DITTO



ACADEMIC

Don - reading
Ed - math
Karen - science

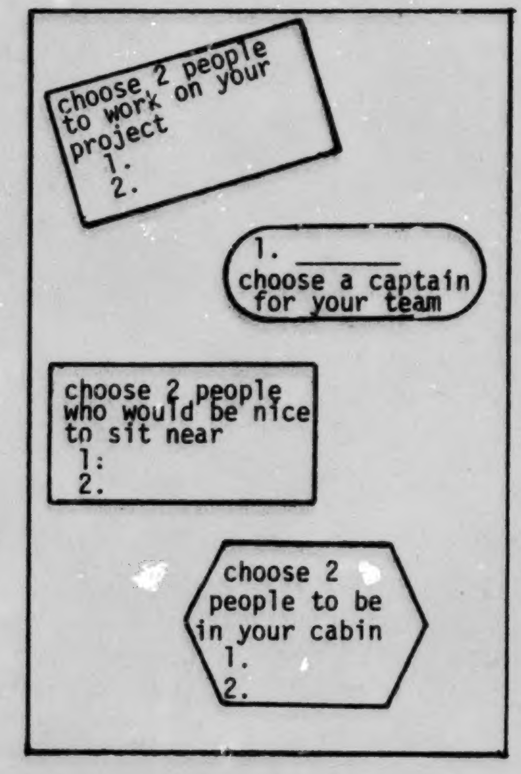
PEOPLE-TO-PEOPLE

Marge - good listener
Roger - sense of humor
Meredith - asks good questions
Gary - good friend

TALENT

Ann - artistic
Mike - baseball player
Michelle - gymnastics
Sue - piano

FOLLOW-UP DITTO



choose 2 people to work on your project
1.
2.

1. _______
choose a captain for your team

choose 2 people who would be nice to sit near
1:
2.

choose 2 people to be in your cabin
1.
2.

ADOPT A TREE

(Pre-camp Activity)

PURPOSE: To sharpen sensory awareness through using the "powers" of observation. To record information in an organized form.

DIRECTIONS: Find a tree to observe. Circle the type of tree you have chosen:

-Evergreen　-Conifer
-Deciduous　-Broadleaf

1. Observe and describe your tree. Choose at least three characteristics to observe. Record your findings and include a drawing of your tree.

   Suggestions:

   -Shape of tree (outline)
   -Arrangement of branches (alternate, opposite, whorled)
   -Flowers
   -Fruit
   -Roots
   -Trunk
   -Bark (texture, color)
   -Smell

MY TREE

2. Observe and describe the leaves or needles on your tree. Choose at least three characteristics to observe. Record your findings and include a drawing of your subject.

   Suggestions:

   -Color
   -Shape (oval, round)
   -Texture (rough, smooth, sticky)
   -Size (small, large)
   -Edges (smooth, indented)
   -Smell

MY LEAF

3. Observe and describe a microhabitat found on or near your tree (clues: on bark; under leaves, roots, shrubs). Record your findings and include a drawing of your microhabitat.

   Look for:

   -Evidence of animal life, creatures (food supply, shelter)
   -Microclimate (temperature, moisture)
   -Non-living things surrounding your tree (litter, rocks, dead leaves, -effect on living things-)
   -Evidence of decomposition
   -Fungus
   -Effects of human pollution (carving, etc.)

MY MICROHABITAT

INTERVIEW A TREE

(Pre or Post Camp Activities)

PURPOSE: To sharpen sensory awareness through careful observation.

DIRECTIONS: Choose a tree near your home, school or in one of your favorite recreation areas. Interview your tree for a newspaper article. This interview should reflect the tree's "point of view." List your interview questions and write the answers in complete sentences. Some ideas for interview questions are listed below:

- What is your name?
- How do you like your home? Why?
- Who are your neighbors?
- What do you eat for dinner?
- Who visits you? (animals, birds, insects, etc.)
- Have you had any accidents?
- Do you have any injuries now? Where? What happened?
- When do you need help?
- Who helps you?
- What climate or season do you like the best? Why?
- Who are your friends?
- What are the advantages of being a tree? Why?

Please choose at least three of the examples listed above to use in your interview as well as four or more ideas of your own. Write a rough draft, then copy your interview in your best handwriting.

EXTRA CREDIT:

1. Describe your tree and its location so that someone else could recognize it. Use lots of detail and correct paragraph form.
2. Draw your tree using natural materials for color; (i.e., charcoal (black), grass (green), rotten logs or bark (brown).)

Students may conduct their interview as a pre-camp activity and then repeat the interview with a tree at the Outdoor School. The two interviews may be compared as a post-camp activity. (note: Several interviews may be included in a class newspaper.)

IMAGES IN POETRY

(Pre-Camp or Post Camp Activity)

Teacher-Directed

PURPOSE: To express feelings about nature through images in poetry.

DIRECTIONS:

Think of something in nature that has caused you to feel strongly (i.e., scenes, objects, animals, events.) Choose one of the following forms of poetry to express your feelings. Brainstorm a list of adjectives or images to describe your topic, use your imagination and write your poem!

EXAMPLES:

Picto-Poem (a shaped Poem)

Make a simple outline drawing of your theme. Arrange the describing words in the shape of your subject.

"IN FALL, LEAVES DROP"

SWAYING
BRANCHING
ARCHING
TOWERING
WHISPERING
STRETCHING
SHELTERING

ALL
YEAR
ROUND
IT
STANDS
IN
LIGHT
AND DARK
HEAT AND COLD

"LIGHTNING"

LIGHTNING
STREAKING
FLASHING
SPLITTING THE
SKY
LIKE
BRILLIANT
DAGGERS!

Diamonte (a diamond-shaped form)

Component parts:

Line 1: 1 noun (the subject)
Line 2: 2 adjectives describing the noun (line 1)
Line 3: 3 participles (-ing, -ed)
Line 4: 4 nouns related to the subject
Line 5: 3 participles describing the noun (line 7)
Line 6: 2 adjectives describing the noun (line 7)
Line 7: 1 noun (an antonym of the subject)

EXAMPLE

lion,
big, strong,
chasing, eating, sleeping
king, forest, house, hole,
creeping, squeaking, stealing,
small, afraid,
mouse

Haiku (Japanese poetry)

Usually a brief, clear description about one event or detail in nature

Component parts: The Haiku has 17 syllables in 3 lines.

Line 1: 5 syllables
Line 2: 7 syllables
Line 3: 5 syllables

OR in any order: 5 7
5 5
7 5

EXAMPLE

Falling leaves, floating
Gracefully to the ground
Brilliant fire colors.

Cinquain (pronounced sing-kane)

a five-line pattern

Version I: syllables follow a 2, 4, 6, 8, 2 line pattern

2 on the first line
4 on the second line
6 on the third line
8 on the fourth line
2 on the fifth line

EXAMPLE

Fluffy,
Clouds Above Me
And Floating in the Wind
Gentle, Roaming, Animal Shapes
Soft, Quiet

Version II: words follow a 1, 2, 3, 4, 1 line pattern

Line 1: 1 word (idea)
Line 2: 2 words (description)
Line 3: 3 words (interpretation)
Line 4: 4 words (reaction)
Line 5: 1 word (repeat the first line or use one describing word)

EXAMPLE

Winter,
Cold, White
Wonderful and Quiet
Snowflakes on My Tongue
Brrrr!

DIRECTIONS FOR THE TRAIL GAME

(Pre-Camp or Post Camp Activity)

PURPOSE:

To apply and clarify vocabulary words and to provide information related to the Outdoor School Program. This game is not designed to promote competition, but to give students an opportunity to move from their home school, through the Outdoor School activities, and return safely home.

NUMBER OF PLAYERS:

Small groups (2-8). Each player may have his/her own game sheet or work with a partner. (Duplicate appropriate number of Trail Game Sheets.)

MARKER:

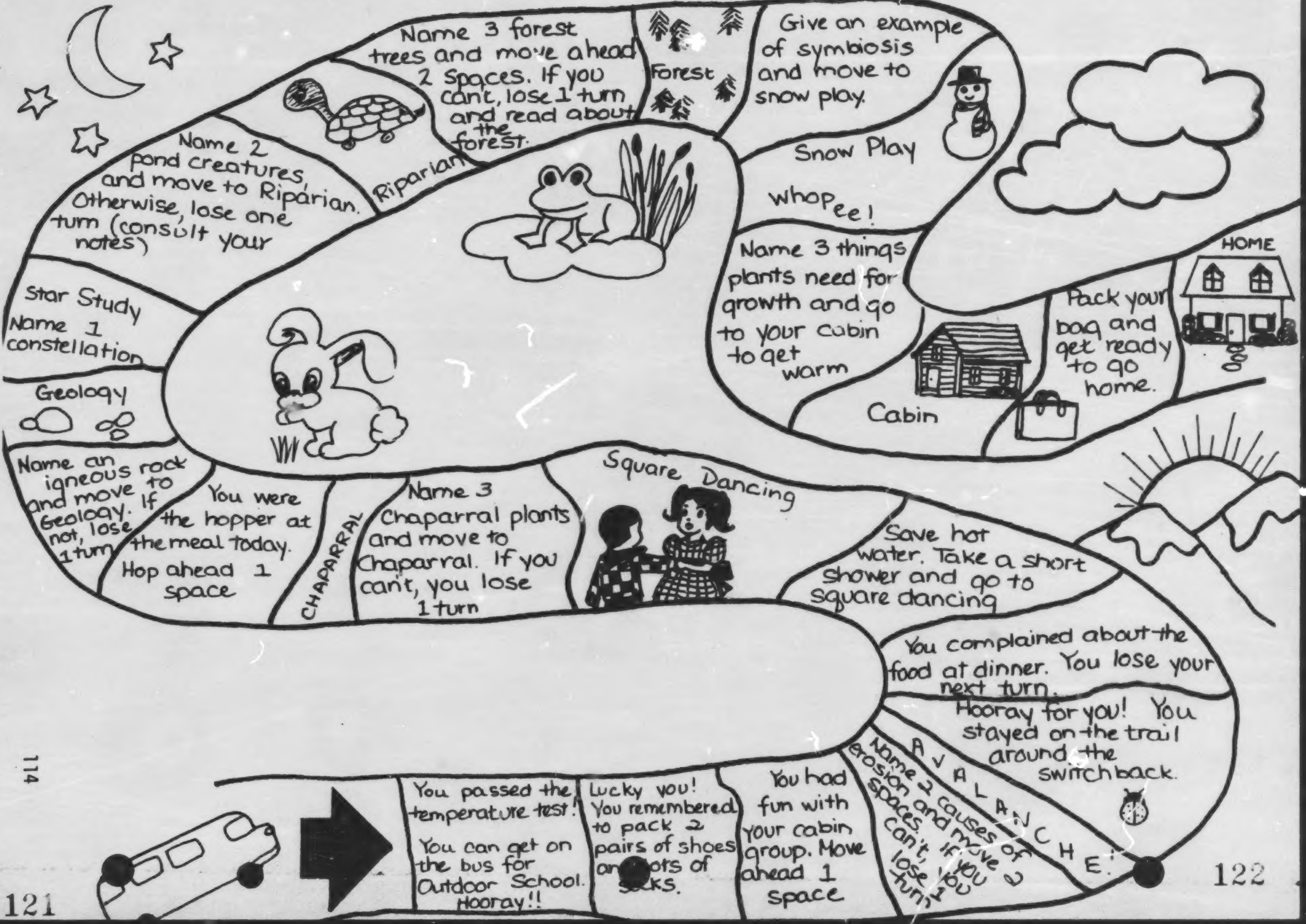
Beans, buttons, or strips of paper

DIRECTIONS:

Players place their markers on the arrow (START). Players choose a number between 1 and 10 to determine order of play. The teacher or student leader (who is not a player) reads a definition from the Bingo Guide Sheets, a vocabulary word to be defined, or a question from the enclosed Sample Test. If the first player answers correctly he/she may move a marker one space on the Trail Game. He/she then reads aloud and follows any directions in that space. The Leader reads a second definiton, vocabulary word, or question and the next player has an opportunity to move. If a player gives an incorrect answer, verified by the Leader, the turn passes to the next player. The game is not completed until all players arrive safely home.

SUGGESTIONS:

Have students design their own game, working with a partner, using a "blank" Trail Game.



You passed the temperature test! You can get on the bus for Outdoor School. Hooray!!

Lucky you! You remembered to pack 2 pairs of shoes and lots of socks.

You had fun with your cabin group. Move ahead 1 space

Name 2 causes of erosion and move 2 spaces. If you can't, you lose 1 turn

Hooray for you! You stayed on the trail around the switchback.

You complained about the food at dinner. You lose your next turn.

Save hot water. Take a short shower and go to square dancing

Name 3 Chaparral plants and move to Chaparral. If you can't, you lose 1 turn

You were the hopper at the meal today. Hop ahead 1 space

Name an igneous rock and move to Geology. If not, lose 1 turn

Name 1 constellation

Name 2 pond creatures, and move to Riparian. Otherwise, lose one turn (consult your notes)

Name 3 forest trees and move ahead 2 spaces. If you can't, lose 1 turn and read about the forest.

Give an example of symbiosis and move to snow play.

Name 3 things plants need for growth and go to your cabin to get warm

Pack your bag and get ready to go home.

WORD SEARCH

(Pre-Camp Activity)

Find and circle the hidden words below. Words may be vertical, horizontal or diagonal. Letters may be used in more than one word.

algae
avalanche
bedrock
chaparral
chlorophyll
cone
conifer
ecology
ecosystem
faulting
fern
igneous
insect
lichen
moss
parasite
prey
reptile
symbiosis
yucca
watershed
weather

R E A R E P T I L E C A R L A W D

Y S Y M B I O S I S C L L A M A E

U C O W E A T H E R H L S T N T O

C L I C O N I F E R L T T R A E N

C K C A I G N O S S O A E B C R N

A V A L A N C H E B R F W I H S C

M P A R A S I T E K O V D N M H O

E B C O Y U R I L A P O H S I E N

E N E H R R C L I C H E N E G D E

B D R C A V I A N R Y M M C N Y U

E P I S O P P R E Y L O A T E X A

D E A G T L A I G A L G A E O P R

R A C T R L O R B A C E C M U N T

O R R G E U Y G R C D E O F S G O

C M O S S I G H Y A I J N L S K K

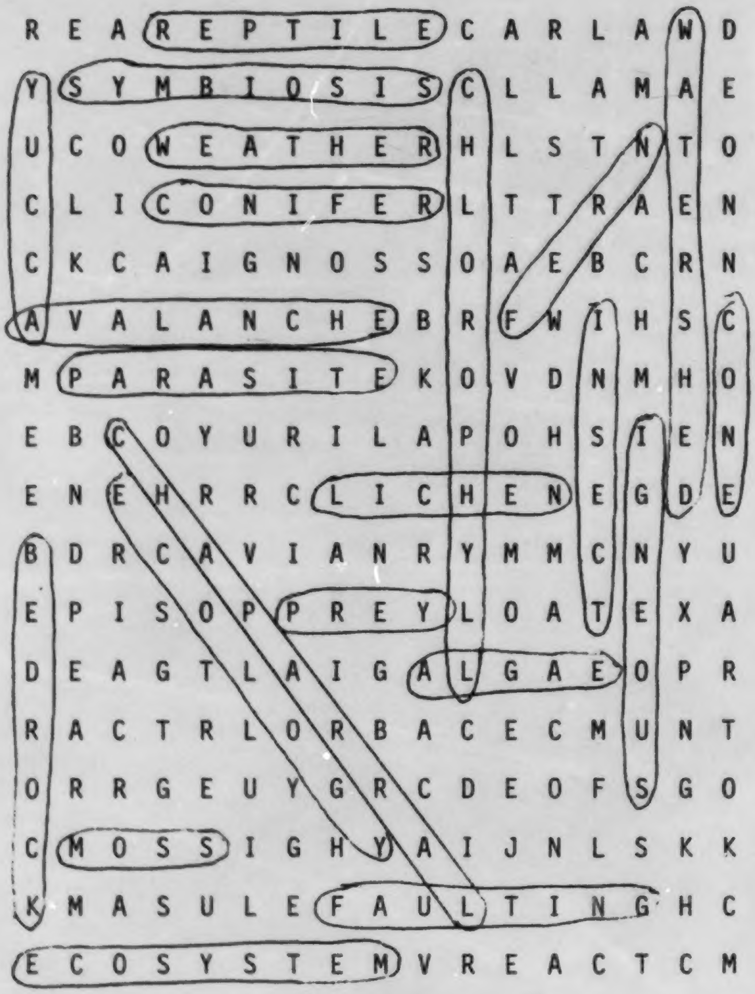
K M A S U L E F A U L T I N G H C

E C O S Y S T E M V R E A C T C M

WORD SEARCH

ANSWER GUIDE

algae
avalanche
bedrock
chaparral
chlorophyll
cone
conifer
ecology
ecosystem
faulting
fern
igneous
insect
lichen
moss
parasite
prey
reptile
symbiosis
yucca
watershed
weather



R	E	A	R	E	P	T	I	L	E	C	A	R	L	A	W	D
Y	S	Y	M	B	I	O	S	I	S	C	L	L	A	M	A	E
U	C	O	W	E	A	T	H	E	R	H	L	S	T	N	T	O
C	L	I	C	O	N	I	F	E	R	L	T	T	R	A	E	N
C	K	C	A	I	G	N	O	S	S	O	A	E	B	C	R	N
A	V	A	L	A	N	C	H	E	B	R	F	W	I	H	S	C
M	P	A	R	A	S	I	T	E	K	O	V	D	N	M	H	O
E	B	C	O	Y	U	R	I	L	A	P	O	H	S	I	E	N
E	N	E	H	R	R	C	L	I	C	H	E	N	E	G	D	E
B	D	R	C	A	V	I	A	N	R	Y	M	M	C	N	Y	U
E	P	I	S	O	P	P	R	E	Y	L	O	A	T	E	X	A
D	E	A	G	T	L	A	I	G	A	L	G	A	E	O	P	R
R	A	C	T	R	L	O	R	B	A	C	E	C	M	U	N	T
O	R	R	G	E	U	Y	G	R	C	D	E	O	F	S	G	O
C	M	O	S	S	I	G	H	Y	A	I	J	N	L	S	K	K
K	M	A	S	U	L	E	F	A	U	L	T	I	N	G	H	C
E	C	O	S	Y	S	T	E	M	V	R	E	A	C	T	C	M

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ALPHABETICAL VOCABULARY LIST

(Pre-Camp Activity)

DIRECTIONS: Arrange the following words in each box in the correct alphabetical order by numbering them in sequence from 1 to 5.

1	2	3
____ amphibian	____ evergreen	____ geology
____ avalanche	____ erosion	____ gall
____ atmosphere	____ evaporate	____ galaxy
____ adaptation	____ extrusive rocks	____ gneiss
____ algae	____ ecosystem	____ granite
4	3	6
____ invertebrates	____ carnivore	____ snag
____ insects	____ conifer	____ scavenger
____ igneous rocks	____ climate	____ symbiosis
____ intrusive rocks	____ constellation	____ sedimentary rocks
____ interdependence	____ chlorophyll	____ spore
7	8	9
____ humidity	____ marble	____ prey
____ hibernate	____ moss	____ parasite
____ habitat	____ mammal	____ pollution
____ herbivore	____ mineral	____ photosynthesis
____ hygrometer	____ metamorphic rocks	____ pupa
10	11	12
____ chaparral	____ barometer	____ fungus
____ cambium	____ broadleaf	____ faulting
____ conservation	____ buckthorn	____ forest
____ community	____ bobcat	____ folding
____ coyote	____ bedrock	____ flower

ALPHABETICAL VOCABULARY ANSWER SHEET

1 3 amphibian 5 avalanche 4 atmosphere 1 adaptation 2 algae	2 4 evergreen 2 erosion 3 evaporate 5 extrusive rocks 1 ecosystem	3 3 geology 2 gall 1 galaxy 4 gneiss 5 granite
4 5 invertebrates 2 insects 1 igneous rocks 4 intrusive rocks 3 interdependence	5 1 carnivore 4 conifer 3 climate 5 constellation 2 chlorophyll	6 3 snag 1 scavenger 5 symbiosis 2 sedimentary rocks 4 spore
7 4 humidity 3 hibernate 1 habitat 2 herbivore 5 hygrometer	8 2 marble 5 moss 1 mammal 4 mineral 3 metamorphic rocks	9 4 prey 1 parasite 3 pollution 2 photosynthesis 5 pupa
10 2 chaparral 1 cambium 4 conservation 3 community 5 coyote	11 1 barometer 4 broadleaf 5 buckthorn 3 bobcat 2 bedrock	12 5 fungus 1 faulting 4 forest 3 folding 2 flower

SAMPLE NEWSPAPER

OUTDOOR SCHOOL GAZETTE

Published by: *CLASS*

School Date

SPECIAL THANK YOU'S

ARTICLE
OR
INTERVIEW

POEM

RIDDLES

----------- -----------------
----------- ------------
--------- ---------------

WHAT WE MOST ENJOYED AT OUTDOOR SCHOOL

I liked -----------------
I really enjoyed ---------

I had fun ----------------
I learned how ------------
My favorite experience was

WORD SEARCH

X X X X X X X X X X X
X X X X X X X X X X X
X X X X X X X X X X X
X X X X X X X X X X X

Words to find:
- places
- hikes
- plants
- cabin leaders
- activities
- vocabulary

DRAWINGS

Food Chain

Water Cycle

Eco-System

NATURE BINGO

(Pre-Camp or Post Camp Activity)

PURPOSE:

To introduce and clarify vocabulary words.

NUMBER OF PLAYERS:

4-8 players
Entire class if duplicate copies of the Bingo Card are used.

MARKERS:

Beans, buttons, paper strips, etc.

DIRECTIONS:

Duplicate several copies of each Bingo Card so that each player may have his/her own card or work with a partner.

You may wish to duplicate the guide sheet and cut the definitions into cards to be used as markers.

Teacher or student leader reads a definition from the Guide Sheets. Players may raise their hands if they believe they have the correct word on their Bingo Card.

The leader may call on any number of players until the correct answer is given and verified by the definition on the Guide Sheet. If no member of the group knows the correct answer, then the leader must tell the players the answer. All players may then cover the correct word with a marker.

WINNERS:

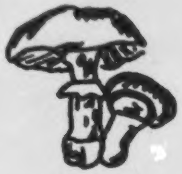
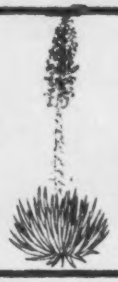
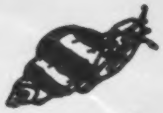
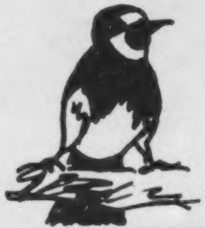
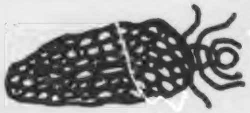
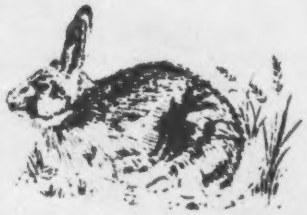
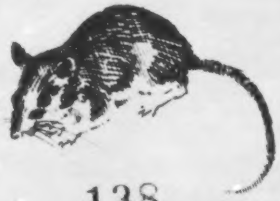
Those players covering the squares on their entire card, squares on the diagonal, or any configuration the leader designates before play begins.

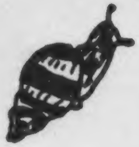
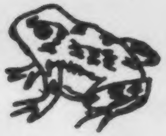
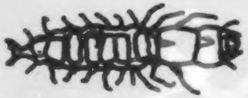
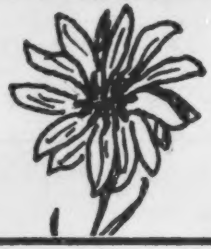
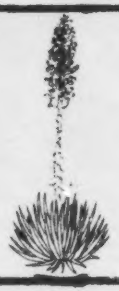
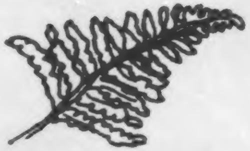
ADAPTATION A change in structure or habit of an organism to produce better adjustment to the environment	CONSTELLATION A group of stars depicting an imaginary figure	*(drawing of a snail)* INVERTEBRATE The lower and simpler animal forms having no backbone	LICHEN A plant composed of fungi and algae living together in partnership	DIURNAL Awake and active during the day
(drawing of a frog) AMPHIBIAN Cold-blooded vertebrate that has gills when young and lungs when an adult	ALGAE Simple plants living in water containing chlorophyll but no true roots, stems, or leaves	*(drawing)* HELLGRAMMITE Fearsome looking larva of the Dobson Flies.	CO_2 AND O_2 CYCLE The interchange of carbon dioxide and oxygen between plants and animals	*(drawing)* FLOWER The part of a seed plant comprising reproductive organs and their coverings
ECOLOGY The scientific study of the relationships between living things and their environment.	*(drawing)* YUCCA A chaparral plant widely used by the Indians with dagger-like green leaves and a tall flower stalk	FREE	CHLOROPHYLL Green coloring matter in plants essential for food manufacture in photosynthesis	PHOTOSYNTHESIS Process by which green plants use sunlight to produce food
WATERSHED A region or area drained by a stream or river	DECOMPOSER A plant or animal that feeds on dead material and causes its breakdown into simpler forms	METAMORPHOSIS The change in the physical form of an insect as part of its development	POLLUTION Harmful substances deposited in the air, water, or land	WEATHERING The process of breaking down rock by such forces as ice, water, growing plants, and temperature.
(drawing) FERN A flowerless, seedless plant that reproduces itself through spores	BAROMETER An instrument for measuring atmospheric pressure	IGNEOUS ROCKS Rocks formed by the cooling and hardening of molten materials	STAR A large glowing ball of hot gases	PUPA The resting stage in the insect life cycle complete metamorphosis.

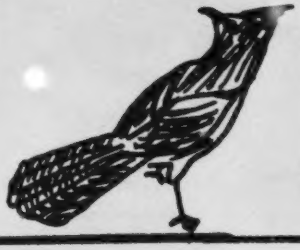
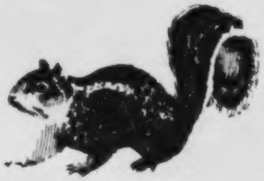
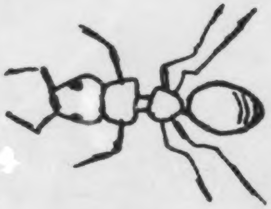
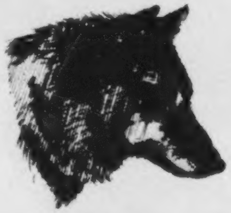
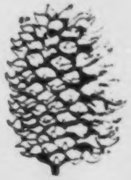
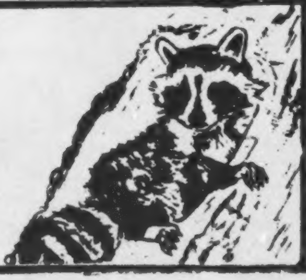
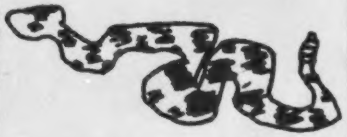
DECIDUOUS PLANTS A plant which loses its leaves seasonally and later grows a new set	GEOLOGY The study of the structure of the earth, its history, and the forces that affect it	IGNEOUS ROCKS Rocks formed by the cooling and hardening of molten material	CONSUMER Organisms who prey on and feed on living material.	*(drawing of mushrooms)* FUNGI Group of simple plants with no green coloring matter that can live on dead material
COMMUNITY A group of plants and/or animals living together and depending upon one another in a given area	*(drawing)* YUCCA A chapparal plant widely used by the Indians with dagger-like green leaves and a tall flower stalk.	*(drawing of a snail)* INVERTEBRATE The lower and simpler form of animals having no backbone	*(drawing)* ACORN WOODPECKER A bird that collects and stores acorns	CLIMATE Average weather conditions of an area or a long period of time
GALL A growth on plants due to insects or parasitic fungi	CONSTELLATION A group of stars depicting an imaginary figure	FREE	LICHEN A plant composed of a fungus and an algae living together in a partnership.	WEATHERING The process of breaking down rock by such forces as ice, water, growing plants, and temperature.
CONSERVATION The wise use of natural resources	ECOSYSTEM An environment of any size where living and non-living things interact.	SYMBIOSIS A special relationship between 2 living things; usually dependent on one another	*(drawing)* CADDISFLY Insect that builds a protective shell around itself.	DIURNAL Awake and active during the day
SEDIMENTARY ROCKS Rocks formed by the cementing and hardening of many layers of materials deposited in water	PARASITE A plant or animal that takes its food from another living thing (usually harmful)	*(drawing of a rabbit)* HERBIVORE An animal that mainly eats plants	BROADLEAF A term describing a plant with wide bladed leaves	*(drawing of a mouse)* PREY An animal hunted by another

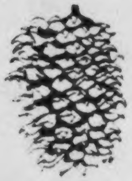
ADAPTATION A change in structure or habit of an organism to produce better adjustment to the environment	CONSTELLATION A group of stars that depict an imaginary figure	CAMBIUM The growth layer between the bark and wood on a tree	VERTEBRATES The higher, and more complex form of animal having a backbone	WEATHERING The process of breaking down rock by forces such as ice, water, chemicals or changing temperatures
DECIDUOUS PLANT A plant which loses its leaves and later grows a new set	GEOLOGY Study of the structure of the earth, its history, and the forces that affect it	*(drawing)* STELLER'S JAY A forest bird easily identified by its black crest	ENVIRONMENT All living and non-living conditons affecting the life of animals or plants at any point in their life cycle	METAMORPHIC ROCKS Rocks that have undergone a change through heat and pressure
GALL A growth on plants due to insects or parasitic fungi	ALGAE Simple plants living in water that contain chlorophyll but lack true roots, leaves or stems	FREE	*(drawing of a squirrel)* MAMMAL A warn-blooded vertebrate with hair. The female nurses its young with milk. (This is a rodent with a bushy tail.)	CONIFER An evergreen shrub or tree that bears its seeds in true cones
(drawing of an ant) INSECT Invertebrate with 3 body segments and 3 pairs of legs and usually wings	TRANSPIRATION The process by which water evaporates from plant tissues	*(drawing of a coyote)* PREDATOR An animal that hunts and kills other animals for food.	*(drawing of a pine cone)* CONE The seed structure associated mainly with pines, firs, and other needle-leaved trees	SUN The yellow star which is the center of our solar system
(drawing of a raccoon) NOCTURNAL Awake and active during the night	*(drawing of a snake)* REPTILE A cold-blooded vertebrate that has scales and crawls or moves on small legs or on its belly	IGNEOUS ROCKS Rocks formed by the cooling and hardening of molten material	BROADLEAF The term describing a plant with wide bladed leaves	EROSION The wearing away of earth or rock by air, water, or changes in temperature

CHAPPARAL The community of thick and often thorny bushes that grow on dry slopes and in poor soil	**PARASITE** A plant or animal which takes its food from another living things, (usually harmful	**HABITAT** The region where a plant or animal naturally grows or lives	**CHLOROPHYLL** Green coloring matter in plants essential for food manufacture	**DIURNAL** Awake and active during the day
(drawing of a frog) **AMPHIBIAN** A cold-blooded vertebrate that has gills when young and lungs when an adult	**INTERDEPENDENCE** Reliance of two or more living things upon one another for survival	**IGNEOUS ROCKS** Rocks formed by the cooling and hardening of molten material	*(drawing of a pine cone)* **CONE** The seed structure associated mainly with pines, firs, and other needle-leaved trees	**RIPARIAN** Plants or animals living along the banks of streams or other bodies of water
HYGROMETER An instrument for measuring the relative humidity (amount of moisture in the air)	**EVERGREEN** A plant which retains its green foliage throughout the year	FREE	**ENVIRONMENT** All living and non-living conditions affecting the life of animals or plants at any point in their life cycle.	**EROSION** The wearing away of earth or rock by air, water, or changes in temperature
(drawing of a raccoon) **NOCTURNAL** Awake and active during the night	**CONSTELLATION** A group of stars depicting an imaginary figure	*(drawing)* **STELLER'S JAY** A forest bird easily identified by its black crest	**BROADLEAF** The term describing a plant with wide bladed leaves	**WEATHERING** The process of breaking down rock by such forces as ice, water, chemicals or changes in temperature.
SEDIMENTARY ROCKS Rocks formed by the cementing and hardening of many layers of materials deposited in wa[illegible]	*(drawing of a fox)* **CARNIVORE** A chiefly flesh-eating animal	**CAMBIUM** The growth layer between the bark and and wood on a tree	*(drawing)* **ACORN WOODPECKER** A bird that collects and stores acorns	**PUPA** The resting stage in the insect life cycle of complete metamorphosis

DECIDUOUS PLANTS	GEOLOGY	IGNEOUS ROCKS	CONSUMER	
COMMUNITY				CLIMATE
GALL	CONSTELLATION	FREE	LICHEN	WEATHERING
CONSERVATION	ECOSYSTEM	SYMBIOSIS		DIURNAL
SEDIMENTARY ROCKS	PARASITE		BROADLEAF	

ADAPTATION	CONSTELLATION		LICHEN	DIURNAL
	ALGAE		CO_2 AND O_2CYCLE	
ECOLOGY		FREE	CHLOROPHYLL	PHOTOSYNTHESIS
WATERSHED	DECOMPOSER	METAMORPHOSIS	POLLUTION	WEATHERING
	BAROMETER	IGNEOUS ROCKS	STAR	PUPA

ADAPTATION	CONSTELLATION	CAMBIUM	VERTEBRATES	WEATHERING
DECIDUOUS PLANT	GEOLOGY		ENVIRONMENT	METAMORPHIC ROCKS
GALL	ALGAE	FREE		CONIFER
	TRANSPIRATION			SUN
		IGNEOUS ROCKS	BROADLEAF	EROSION

CHAPPARAL	PARASITE	HABITAT	CHLOROPHYLL	DIURNAL
	INTERDEPENDENCE	IGNEOUS ROCKS		RIPARIAN
HYGROMETER	EVERGREEN	FREE	ENVIRONMENT	EROSION
	CONSTELLATION		BROADLEAF	WEATHERING
SEDIMENTARY ROCKS		CAMBIUM		PUPA

What Do You Remember?

(Post-camp Activity)

Purpose: To record observed characteristics of three habitats at the Outdoor School. To compare the similarities and differences found in these environments.

Directions:

You have just returned from the Outdoor School and have had the opportunity to use your senses. Think about the living and non-living things in the environments you experienced. Describe the similarities and differences you observed on the study trails. Make a chart and record your information.

Consider these topics:

- Temperature
- Soil (moisture and temperature)
- Water supply
- Light
- Amount of vegetation and any special characteristics
- Special characteristics of animals found in this environment.
- Other

FOREST	CHAPARRAL	RIPARIAN

CONCERNED CITIZEN

(Post Camp Activity)

PURPOSE:

To take an active part in affecting change in your environment.

DIRECTIONS:

Write an "ecology letter" to a government agency expressing concern regarding an environmental issue and suggest a course of action.

Write a letter to a special interest group requesting information regarding their "cause." After receiving this information, evaluate the reasons they have for supporting their project or issue. (Class discussion or debate.)

Use a standard form for your business letter. (Follow the A, B, C's - accuracy, brevity, courtesy)

Include:
Return Address
Heading
Salutation
Content
Closing
Signature

HEY! I'M CONCERNED!

Street
City, State Zip Code
Date

Agency
Street
City, State Zip Code

Gentlemen:

x x x x x x x x x x x x x x x x x x x
x x x x x x x x x x x x x x x x x x x

x x x x x x x x CONTENT x x x x x x x
x x x x x x x x x x x x x x x x x x x

Sincerely,

Name
Your Name

SURVIVAL AT THE OUTDOOR SCHOOL

(Post Camp Activity)

You and a few other creatures from a far-off planet have experienced mechanical difficulties with your spaceship and have had to unexpectedly make a landing at the Outdoor School area. You were unable to replenish your supplies, so now you have to survive on what is available. What will you eat? What will you drink? How will you keep warm? What will you use to build a shelter? What natural materials will be useful to you? Write a story about your adventure and include at least ten items necessary for survival. Use the following steps:

____ 1. Make an outline

____ 2. Write a rough draft

____ 3. Proofread your rough draft

____ 4. Write your final copy in your best handwriting

Students should include information on:

1. *Survival Skills - stay calm, think, observe, plan a course of action*
2. *Edible Items - blackberries, watercress, trout, cactus apples, manzanita berries*
3. *Type of Shelter - lean-to, cave, pit*
4. *Water Supply - solar still, purification techniques, location of source*
5. *Additional Natural Items - yucca ropes to be used for traps and baskets*

You may wish to have the students use an old Outdoor School manual for a reference.

MORK VISITS OUTDOOR SCHOOL

(Post-Camp Activity)

You are a newspaper reporter and have been given the assignment of interviewing Mork who has just returned from the Outdoor School.

Write your newspaper article describing some of his experiences. Some ideas for interview questions are listed below . . .

- What was Mork's description of a food chain?
- How did he feel when he discovered that one creature must eat another creature in order to survive?
- What was Mork's reaction when he learned some trees kill people ("widow-maker") or that people kill trees (by carving their initials in the bark)?
- Did he feel sorry for the caddisfly because it lives in such a tiny home? Why?
- How did he think the water strider was able to walk on the surface of the water?
- What was Mork's explanation of symbiosis?
- What did Mork think of snow?
- Did he think that a pine cone was a type of ice cream cone? Why?

Please choose at least three of the examples above to use in your interview as well as four or more ideas of your own. Write a rough draft. List your interview questions and be sure to write your answers in complete sentences.

OPTIONAL:

Some of the interviews may be combined with stories, artwork, and other types of articles to make up a class newspaper. Neat, correct handwriting can be stressed as parents seem to enjoy the handwritten articles more than a typed copy.

MY FAVORITE TRAIL

(Post-Camp Activity)

Make a list of ten adjectives that describe the environment on your favorite trail.

FOREST

CHAPARRAL

RIPARIAN

GEOLOGY

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

Write a paragraph about your trail and use as many of your adjectives as you can. Be sure to:

- start your paragraph with a topic sentence
- include two or more supporting ideas
- end with a concluding sentence

Give your paragraph to another student and have him/her underline the topic sentence in red and the supporting sentences in blue.

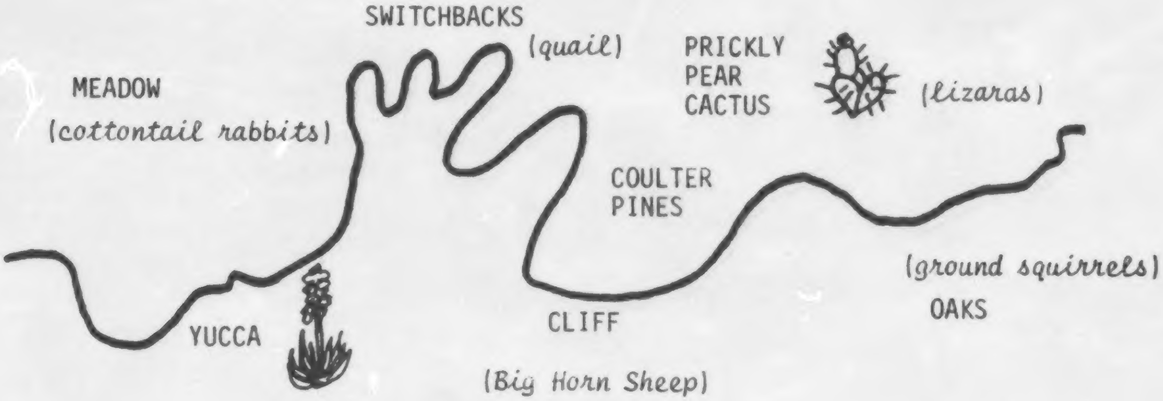
(These paragraphs may be used in a student newspaper and sent home to parents.)

IMAGINARY TRAIL

(Post Camp Activity)

DIRECTIONS:

Draw a map of an imaginary study trail. Include at least six points of interest as well as plants, animals, birds, reptiles that you might look for. (Work with a partner.)

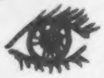
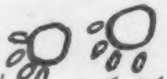
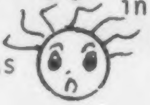

SWITCHBACKS
(quail)
PRICKLY PEAR CACTUS
(lizaras)
MEADOW
(cottontail rabbits)
COULTER PINES
(ground squirrels)
OAKS
YUCCA
CLIFF
(Big Horn Sheep)

OPTIONS:

Describe your trail in good paragraph form and tell why others would want to spend time there.

List at least five things for successful hiking on the trail. (Include some trail manners.)

Write a picto-story about your adventures on the trail. Use pictures instead of words to "highlight" your story.

Example:  saw  in the soft mud on my trail. I was  !!

NEW FEELINGS

(Post-camp Activity)

Purpose: To identify and describe feelings about the Outdoor School experience.

Direction:

Answer the following questions in complete sentences. Use your best handwriting.

1. How did you feel when you arrived at the Outdoor School? (Give three examples of how you felt)
2. Describe one activity you felt strongly about. What could have made it different? Why?
3. Describe three feelings or new ideas that you have today because of your experience at the Outdoor School.
4. How did you feel when you left the Outdoor School? Why? (Give three examples of how you felt)
5. Pretend that you are a cabin leader at the Outdoor School and are responsible for 10 students. List 3 things you would do to:
   - Help them feel comfortable and get along with their cabin mates.
   - Help them to appreciate the natural environment.
   - Help them to leave the natural environment in better condition then when they arrived.
6. Describe a gift that you would give someone from the Outdoor School (i.e., a classmate, a cabin leader, teacher, the principal, etc.)

Examples..... I would give Mr. Baker, the principal, a "pat on the back" because he made me feel so welcome.

I would give *student's name* an opportunity to work in a forest because he was so careful of the plants on our hikes.

I would give *cabin leader* a big thank you and a warm smile because she helped me solve a problem with a cabin mate.

I would give a week's stay at Outdoor School to *student's names* because they really learned a lot about the creatures in the pond and shared their enthusiasm with others.

MY FAVORITE ANIMAL

(Post-camp Activity)

Purpose: To use a variety of reference materials for research (i.e. dictionary, encyclopedia, almanac, card catalogue for special book titles, "The Readers Guide" for magazine articles, etc.)

Directions:

Choose an interesting reptile, bird or mammal you hay have observed or one you are curious about and write a report. You may wish to include some of the following suggestions:

- Where does it live?
- Who does it live with (animals, plants)
- What does it eat?
- Who does it prey upon?
- Who preys on it?
- Where does it find water?
- Where does it perch, sleep, nest, hibernate, or breed?
- What does it use or need for protection?
- How does it influence the environment?

Option:

Class reports may be illustrated and combined to form an ecosystem on a mural.

VOCABULARY WORK SHEET

(Post Camp Activity)

Each group of words is related to a study trail at the Outdoor School. Please circle the letter next to word in each group that does not fit.

EXAMPLE:
a. metamorphic
b. folding
c. igneous
[✓ d.] soil cycle
e. sedimentary

(The answer is "d" - soil cycle which was discussed on the Forest Trail. All the other words are related to the Geology Trail)

1	2	3
a. erosion	a. evergreen	a. water strider
b. weathering	b. fire ecology	b. bioscope
c. faulting	c. soil layers	c. feeder stream
d. igenous	d. deciduous	d. mugwort
e. symbiosis	3. soil cycle	e. bay leaf
4	5	6
a. watershed	a. larva	a. manzanita
b. decomposers	b. alders	b. white sage
c. metamorphic	c. mint	c. stinging nettles
d. tree structure	d. erosion	d. yucca
e. raccoons	e. ecosystem	e. yerba santa
7	8	9
a. mistletoe	a. slope effect	a. coyote
b. moss	b. evergreen	b. deer mouse
c. ferns	c. fire ecology	c. scrub jay
d. canyon oak	d. buckwheat	c. cottontail rabbit
e. blackberry	e. bighorn sheep	e. mayfly

VOCABULARY ANSWER SHEET

1	2	3
a. erosion	a. evergreen	a. water strider
b. weathering	[✓ b.] fire ecology	b. bioscope
c. faulting	c. soil layers	c. feeder stream
d. igneous	d. deciduous	d. mugwort
[✓ e.] symbiosis	e. soil cycle	[✓ e.] bay leaf
4	**5**	**6**
a. watershed	a. larva	a. manzanita
b. decomposers	b. alders	b. white sage
[✓ c.] metamorphic	c. mint	[✓ c.] stinging nettles
d. tree structure	[✓ d.] erosion	d. yucca
e. raccoons	e. ecosystem	e. yerba santa
7	**8**	**9**
a. mistletoe	a. slope effect	a. coyote
b. moss	[✓ b.] evergreen	b. deer mouse
c. ferns	c. fire ecology	c. scrub jay
d. canyon oak	d. buckwheat	d. cottontail rabbit
[✓ e.] blackberry	e. bighorn sheep	[✓ e.] mayfly

NAME ______________________

SAMPLE TEST

DIRECTIONS: Write the letter of the correct answer on the line beside the question.

GEOLOGY TRAIL ANSWERS

1. Which two mountain making processes formed the San Bernardino Mountains? 1. ______

   A. volcanic and faulting
   B. doming and folding
   C. folding and faulting
   D. doming and faulting

2. Rocks which are called "fire rocks" and are formed at high temperatures are ______. 2. ______

   A. metamorphic rocks
   B. igneous rocks
   C. sedimentary rocks
   D. none of the above

3. Which phrase describes metamorphic rocks? 3. ______

   A. "fire rocks"
   B. formed by the action of water and/or extrusion
   C. changed by heat, pressure or chemical action
   D. caused by extrusion

4. Granite belongs to which kind of rock? 4. ______

   A. igneous rock
   B. sedimentary rock
   C. metamorphic rock
   D. other

5. Which hard crystalline rock is composed of quartz, feldspar, mica and hornblende? 5. ______

   A. gneiss
   B. garnet
   C. epidote
   D. granite

6. Garnets can be recognized by what color? 6. ______

   A. green
   B. silver
   C. red
   D. white

7. The Indians considered epidote intrustion to be _________. 7. ______

   A. money rock
   B. good luck rock
   C. excellent for glass blowing
   D. none of the above

8. A jagged mountain which has been caused by a break in the earth is the result of _____. 8. ______

   A. folding
   B. faulting
   C. erosion
   D. weathering

9. The most valuable mineral to be found in the Mill Creek area is _______. 9. ______

   A. granite
   B. gold
   C. black mica
   D. feldspar

10. Two rocks which look the most alike are ______. 10. ______

    A. milky quartz and marble
    B. garnet and granite
    C. epidote and feldspar
    D. mica and epidote

CHAPARRAL TRAIL

ANSWERS

1. Which one of the following was responsible for first forming trails in the chaparral? 1. ______

A. Indians
B. Spanish
C. animals
D. cars

2. This plant needs the pronuba moth to spread its pollen for reproduction. 2. ______

A. yerba santa
B. buckwheat
C. scrub oak
D. yucca

3. A thorny bush the deer enjoy eating is called ______. 3. ______

A. fawn oak
B. thistle
C. buckthorn
D. sweet brush

4. When the trail makes a sharp U-turn in the opposite direction, we call this a ______. 4. ______

A. nocturnal
B. symbiosis
C. switchback
D. cut out

5. Which characteristic is not common to the chaparral? 5. ______

A. poor soil
B. small dwarfed plants
C. moist soil
D. deep root systems

6. What is the name given to a tough shrub with adaptations for drought and fire? 6. ______

A. chamise
B. buckwheat
C. yerba santa
D. mountain mahogany

7. There is now a $500.00 fine for collecting this bush without a permit. Which plant has the name meaning "little apple?" 7. ______

A. scrub oak
B. rabbit brush
C. manzanita
D. red thistle

8. This plant has a strong odor and is used for flavoring in cooking. 8. ______

A. yucca
B. white sage
C. chamise
D. buckwheat

9. Which one of the following has little leaves that shade each other from the sun? 9. ______

A. scrub oak
B. white sage
C. mountain mahogany
D. canyon oak

10. Which animal in the chaparral lines his nest with white sage? 10. ______

A. wood rat
B. ground squirrel
C. red-tailed hawk
D. field mouse

RIPARIAN TRAIL ANSWERS

1. What was the most common tree found in the pond and stream area? 1. ______
   A. sugar pine
   B. white fir
   C. canyon oak
   D. white alder

2. Which insect is found skating on the surface of ponds and pools? 2. ______
   A. mayfly nymph
   B. mosquito
   C. caddisfly
   D. water strider

3. Mugwort can be used for (an) ________. 3. ______
   A. Indian tea
   B. broom making
   C. antidote against plant sting
   D. insect bite

4. What edible plant is found growing in or around the stream area? 4. ______
   A. watercress
   B. alders
   C. yucca
   D. ivy

5. The word that describes how plants and animals adjust to the environment in which they live is _______. 5. ______
   A. adaptation
   B. transpiration
   C. condensation
   D. hibernation

6. Which one of the following may not have caused bark markings on the alder tree? 6. ______
   A. birds
   B. man
   C. rocks
   D. insects

7. Which poisonous plant often grows next to mugwort? 7. ______
   A. poison oak
   B. poison sumac
   C. stinging nettles
   D. venus flytrap

8. What insect can be found in the larvae stage carrying their home around with them? 8. ______
   A. caddisfly
   B. spider
   C. hellgrammite
   B. whirligig beetle

9. The riparian trail has a mixed forest in some areas. What (fire retardant) tree can be found in the area? 9. ______
   A. oak
   B. pine
   C. incense cedar
   D. elm

10. Alder trees belong to what group? 10. ______
   A. bare
   B. deciduous
   C. evergreen
   D. mugwort

FOREST TRAIL

ANSWERS

1. An example of a symbiotic relationship is ______.

1. ______

A. fungus
B. moss
C. lichen
D. incense cedar

2. The green color in plants is ______.

2. ______

A. epidote
B. moss
C. chlorophyll
D. photosynthesis

3. The layers of the forest floor from the top to the bottom are ______.

3. ______

A. humus, mulch, litter
B. litter, humus, soil
C. mulch, soil, humus
D. humus, soil, litter

4. The process by which plants make food using sunlight, water and air is called _____.

4. ______

A. symbiosis
B. metamorphosis
C. photosynthesis
D. halitosis

5. The process of removing soil is called ______.

5. ______

A. symbiosis
B. weathering
C. decomposing
D. erosion

6. A deciduous tree found in the forest is the ______.

6. ______

A. black oak
B. canyon live oak
C. white fir
D. coulter pine

7. The tree in Figure I is approximately how many years old?

7. ______

A. 5
B. 10
C. 15
D. 20

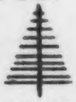


FIGURE I

8. What fern can be seen throughout the forest?

8. ______

A. sword
B. coulter
C. lichen
D. moss

9. Plants which retain their leaves during the winter are called _________.

9. ______

A. deciduous
B. evergreen
C. photosynthesis
D. chlorophyll

10. The trees with the large widow-maker cones are called ______.

10. ______

A. jeffrey pines
B. incense cedars
C. sugar pines
D. coulter pines

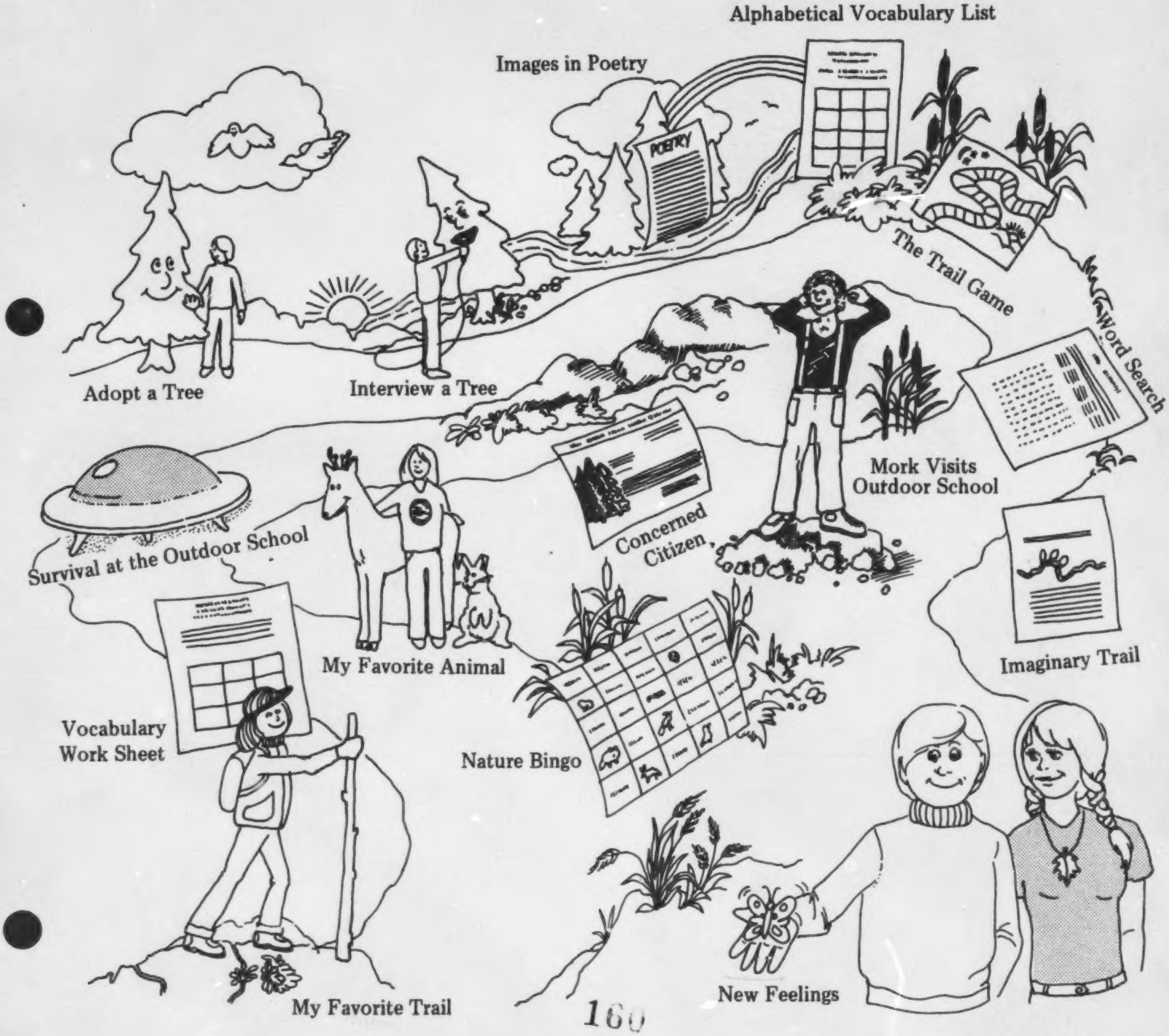
ANSWER SHEET

GEOLOGY TRAIL	CHAPARRAL TRAIL	RIPARIAN TRAIL	FOREST TRAIL
1. C	1. C	1. D	1. C
2. B	2. D	2. D	2. C
3. C	3. C	3. C	3. B
4. A	4. C	4. A	4. C
5. D	5. C	5. A	5. D
6. C	6. A	6. C	6. A
7. A	7. C	7. C	7. C
8. B	8. B	8. A	8. A
9. B	9. C	9. C	9. B
10. A	10. A	10. B	10. D

COMPLETED ACTIVITIES
(Checklist for the Teacher)

DIRECTIONS:

- Follow the trail to successful learning in the Outdoor School Program.
- Color the drawing representing each completed activity.
- Add some of your own for extra projects and assignments.


Alphabetical Vocabulary List
Images in Poetry
POETRY
Adopt a Tree
Interview a Tree
The Trail Game
Word Search
Mork Visits Outdoor School
Concerned Citizen
Survival at the Outdoor School
My Favorite Animal
Imaginary Trail
Vocabulary Work Sheet
Nature Bingo
New Feelings
My Favorite Trail

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APPENDIX

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the original document was blank

TYPICAL INFORMATION LETTER TO PARENTS

(Adapt this form to meet your own needs)

To Parents of Sixth Grade Pupils:

The ____________________ School District, through the Orange County Department of Education, is offering a _____ day, _____ night period of Outdoor Education to the students and teachers of the sixth grades as an optional program.

This will be a new educational experience for your child. The school site and its beautiful outdoor setting is a different type of classroom - an outdoor laboratory where students learn through direct observation and "hands-on" experiences. Students will learn about the natural sciences, conservation of resources, social responsibilities, and appreciation for our wilderness areas.

Living away from home with classmates and the Outdoor School staff will give your child an opportunity to assume responsibility for personal behavior, belongings and equipment, and to enjoy creative and recreational activities. Students from several classes make new friends and establish personal relationships with their classmates and teachers.

DATE: School bus leaves _____________ School at _____ on _____________ and returns to school approximately at 2:30 p.m. on _________________.

COST: Parent's cost per child is $______________. The total expense of the program (excluding transportation) covers room, food, insurance and instructional program.

The Outdoor School, situated on 600 acres of beautiful wooded land at an elevation of 5,280 feet, is located at Forest Home, Forest Falls, California, east of Redlands and approximately 75 miles from Santa Ana.

The school site has a well-equipped central kitchen and dining hall. Other buildings serve as units for group activities such as crafts, recreation, campfire programs, and museum study. Comfortable cabins are used as living quarters for students and staff. These cabins are equipped with sturdy bunks and mattresses, vented heaters, and smoke detectors.

Be planning now for this worthwhile experience for your child. Further information will be coming to you soon.

Very truly yours,

Principal and/or Teacher

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the original document was blank

OUTDOOR SCHOOL FUND RAISING ACTIVITIES

It should be expected that most families will be able to afford the expense of sending their children to Outdoor School. However, there usually will be a number of parents who cannot, for one reason or another, raise the money they need. In this event there are many excellent (and fun) ways for the sixth grade class to participate in fund raising drives to help those youngsters who might not otherwise be able to go to the Outdoor School. These include:

- paper drives
- aluminimum can drives
- bake sales
- candy sales
- fruit sales
- car washes
- talent shows
- rental movie shows
- ecology walks
- pancake breakfasts
- dime-a-dip or spaghetti dinners
- making and selling cookbooks
- carnival booths
- balloon bounce
- bottle collecting
- art auction
- craft bazaar
- jog-a-thons

If it appears that some fund raising is needed in your school, a few helpful hints and precautions follow:

1. A general "sixth grade fund" should be established to avoid identifying any one child for help.
2. In the event any form of food sales are planned:
   a. Each particular group is limited by law to two food sales per year.
   b. Prior permission of the principal and district business office is needed.
   c. Food sales must not begin until after the last class has been dismissed. In other words, children in the lower grades will have to wait until the upper grade classes have been dismissed before buying food, candy, etc.
3. All talent shows or movies that require admission fees must be shown after school or on weekends.
4. Only those movies specifically rented for moneymaking can be shown. This excludes all county films and films checked out from most city libraries.
5. If the use of school facilities is desired outside of normal working hours, a district custodian is required. His salary must be paid by the group requesting his services. However, occasionally a district custodian will be available on weekends at no charge to the group. Teachers may, if they wish, take full responsibility for after hours activities without the use of a paid custodian. In all cases, contact the Business Office to make specific arrangements.

FOREST HOME

ORANGE COUNTY OUTDOOR SCHOOL

CLOTHING LIST

To Parents of Students Attending the Outdoor School:

The following is a complete clothing and equipment list recommended for your child's comfort and safety while at the Outdoor School. For some of these items, less expensive substitutions can be made (i.e., blanket bedroll in place of a sleeping bag). However, since freezing conditions and snow are anticipated during the winter months, you might want to put one or more of these items on your holiday/gift list.

PLEASE MARK THE STUDENT'S NAME AND SCHOOL ON ALL CLOTHING AND PERSONAL BELONGINGS. DO NOT BRING MONEY OR VALUABLES *(there are no stores available to students and no safe place to store valuables)*. DO NOT BRING: FOOD, GUM, RADIOS, ELECTRONIC GAMES, KNIVES OR SHARP TOOLS.

A few extra camp blankets are available for use in unusual circumstances. Some raincoats and rainboots will be available for those who do not have such equipment, however, please bring it during the periods indicated.

The clothing and shoes provided for your child should be comfortable and appropriate for outdoor activities. New jeans and shoes should be worn and broken in prior to arrival at the Outdoor School.

MAILING ADDRESS: Name of child, school he/she attends
Orange County Outdoor School at Forest Home
Indicate *site* (PINES, PONDEROSA, *OR* RANCHO)
Forest Falls, CA 92339

ESSENTIAL ITEMS

☐ Sleeping bag (include extra blanket for cold weather) *OR* blanket bedroll (3 or more blankets)
☐ 1 pair pajamas (heavy type)
☐ 1 extra pair pajamas bottoms or long underwear for winter
☐ 2 pairs of shoes (preferable: 1 pair walking shoes or boots and 1 pair of tennis shoes)
☐ 8 pairs of socks (4 heavy and 4 light weight – INCLUDE ADDITIONAL SOCKS DURING THE WINTER SEASON –)
☐ 4 pairs of jeans or heavy trousers (for boys and girls)
☐ 1 warm *waterproof* jacket
☐ 1 heavy sweater
☐ 2 warm shirts - 2 light shirts
☐ 4 sets of underwear
☐ hat, cap or heavy scarf (ESSENTIAL IN WINTER)
☐ 2 pairs of gloves or mittens (ESSENTIAL IN WINTER)
☐ rain gear and rubber boots (during rainy season)
☐ toilet kit to include: comb, soap in box, shampoo, toothpaste, toothbrush, deodorant)
☐ 2 bath towels, 1 wash cloth
☐ lip salve *(strongly* recommended)

OPTIONAL ITEMS

☐ flashlight
☐ bedroom slippers or shower shoes
☐ pillow and pillow case
☐ hairdryers (NO CURLING IRONS)
☐ shower cap for girls
☐ camera and film
☐ small games/favorite book *(NO* ELECTRONIC GAMES)
☐ bathroom deodorizer
☐ letter writing materials (pencil, paper and stamped envelopes or postcards)

NOTE: LUGGAGE WILL BE LIMITED TO ONE SUITCASE OR DUFFEL BAG AND *ONE* SLEEPING BAG OR BEDROLL; *TWO PIECES ONLY!* ANY MORE WILL BE LEFT BEHIND DUE TO LIMITED SPACE. SLEEPING BAG OR BEDROLL SHOULD BE WRAPPED IN A STURDY PLASTIC BAG LABELED WITH INDELIBLE PEN OR A LUGGAGE TAG: NAME, SCHOOL, DISTRICT.

SUGGESTED CLOTHING LIST FOR TEACHERS

In general, the clothing worn by teachers at the school is typical of, and appropriate to outdoor living. The selection of clothing should be determined, in part, by the season of the year. The school, at an elevation of over 5,000 feet, has extremes of temperatures. Many nights and days in wintertime will have subfreezing temperatures. Snow can be expected during the winter. Even in the fall and spring, when daytime temperatures may be high, the nights may be very cool.

Teachers and visiting administrators do not need to bring sleeping bags. One set of beding and towels are provided in the comfortable living quarters. All rooms are shared accomodations. Smoking and alcohoic beverages are not permitted in the rooms. Mark your flashlight, camera, etc., with your name. Do not bring valuables. There is no safe storage place for them.

Some suggested items you may want to take are listed for your convenience. (See required Clothing List for children, page 139.

CLOTHING:

- Heavy jacket or coat (waterproof in winter)
- Heavy sweater
- Hat (stocking cap in winter)
- Scarf
- Gloves or mittens
- Bathrobe
- Slippers
- Socks (heavy and light)
- Hiking shoes (one pair of boots, water-resistant; must fit properly; composition soles are recommended; heavy tennis shoes are okay during mild weather)
- Raincoat or poncho

CONVENIENCE ITEMS:

- Alarm Clock - ESSENTIAL
- Watch - ESSENTIAL
- Toiletries
- Sun glasses
- Flashlight
- Binoculars
- Camera and film
- Stationery and stamps
- Clipboard (for taking notes on trail)
- Bag for collecting trail samples
- Bus sick bags for kids (large Baggies)

OUTDOOR SCHOOL MASTER ROLL AND CHECKLIST

TEACHER________________________ SCHOOL________________________

BOYS__________ GIRLS__________

Students Last Name / First Name	Money Paid	Exhibit "B" (1)	Exhibit "C" (2)	Administration of Medication (3)	Miscellaneous Information
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					

(1) Required for every child.
(2) For children with special medical needs. Form must be submitted two weeks prior to departure.
(3) For children requiring prescription or non-prescription medication.

EXHIBIT "C"

FOREST HOME

ORANGE COUNTY OUTDOOR SCHOOL

REQUEST AND RELEASE FORM
FOR A CHILD WITH (A) SPECIAL MEDICAL NEED(S)

NAME OF CHILD ____

ADDRESS ________________ CITY ________________ ZIP CODE ________ PHONE (____) AREA ____________

SCHOOL ________________________ DISTRICT ________________________

FOREST HOME SITE (Check one): ☐ PINES ☐ PONDEROSA ☐ RANCHO

DATES OF PARTICIPATION ____

NATURE OF HANDICAP/DISABILITY ____

The Orange County Outdoor School is located at a mountainous site at Forest Home, Forest Falls, San Bernardino County, California, approximately 75 miles from Santa Ana. This site is at an altitude of 5200' and near Mill Creek Canyon. The nature of the Outdoor School program requires that all children participate in a variety of learning and social activities involving vigorous walking and hiking. Standardized, well-balanced meals are provided. Sleeping accommodations are provided in bunk type beds in cabins shared with other children.

Because of the above environmental conditions and active learning and social programs, children with special medical needs are not normally accepted. A child with a special medical need is defined as one who may, due to emotional or physical disability, require special care, medical attention, or daily prescribed medication. Included in this group would be cardiacs, epileptics, severe asthmatics, diabetics, and those with severely impaired mobility.

If you are desirous of having your child participate in the Outdoor School program, please carefully read the following statement and then sign and date below. **Submit this form to the school principal or school nurse ten (10) schools days prior to the arrival date of the child.** The principal and/or nurse will notify the Outdoor School principal of all students with special medical needs. The Outdoor School principal reserves the right to determine which children with special medical needs shall be accepted.

"I/we request permission for my child, who has a special medical need as defined above, to participate in the Orange County Outdoor School Program at Forest Home, located near Forest Falls, San Bernardino County, California and to participate in all activities located there to be held on the above mentioned date(s)."

"I/we have had the opportunity to inspect the premises, and know the risks and danger of such activities, and that unanticipated and unexpected danger may arise during such activities."

"Knowing the unique nature of the Orange County Outdoor School and its activities, I/we as parent(s) and/or guardian(s) of the above named child nonetheless unreservedly give my/our permission for him/her to participate and realize that such permission is a personal assumption of the known or foreseeable risks relating to the safety and well-being of my/our child."

"I/we release and discharge the Orange County Department of Education, Board of Education, Superintendent of Schools, its officers, agents and employees, and Forest Home, Inc. from all claims, demands, actions, and causes of action not caused by a deliberate or negligent act of the above named parties for injuries to the person or property sustained by my/our child."

DATED ________________ PARENT/GUARDIAN ________________________

PARENT/GUARDIAN ________________________

If a single parent or guardian has custody of child, only one (1) signature is necessary. Both parents must sign if they are living with or have custody of the child.

Rev. 9/78

ORANGE COUNTY OUTDOOR SCHOOL
ADMINISTRATION OF MEDICATION
PARENT RELEASE FOR ADMINISTRATION OF MEDICATION

ame of School ______________________ Name of District ______________________

The law allows any person to assist in carrying out a physician's recommendation. The school recognizes the desirability of following a physician's recommendations as nearly as possible at school, just as does a parent at home or any other person (not necessarily a nurse) if the physician requests his assistance. The fact that this is a service or accommodation which the school is not legally required to perform is recognized by all parties signing this form, and in so signing they agree to hold the school or its personnel free from any or all suits which might arise out of these arrangements.

It is understood that the school is not legally obligated to administer medication to my (our) child and, therefore, I (we) agree to hold the school district and its employees free from any and all responsibility for the results of such medication or the manner in which it is administered and to indemify each of them against loss by reason of any civil judgment arising out of these arrangements which may be rendered against them.

INSTRUCTIONS

No one is allowed to administer medication to any child without authorization of the parent(s) or guardian(s). If you wish your child to receive medication you must fill out Part I (Prescription Medication) and/or Part II (Non-Prescription Medication), and sign at the bottom of the page.

If a single parent or guardian has custody of a child, only **one** signature is necessary. **Both** parents must sign if they are living with, or have custody of the child.

PART I

Prescription Medication

I (we), the undersigned, who is (are) the parent(s) of ______________________ request that medication be administered to my (our) child in accordance with my (our) physician's ______________________ (Name of Physician) instructions on the reverse side of this form by a member of the Outdoor School staff if the Outdoor School nurse is not readily available. I (we) will notify the Outdoor hool immediately if I (we) change physicians or if the medication is changed.

PART II

Non-Prescription Medication

I (we), the undersigned, who is (are) the parent(s) of ______________________ request that medication be administered to my (our) child in accordance with my (our) instructions on this form by a member of the Outdoor School staff if the Outdoor School nurse is not readily available. I (we) will notify the Outdoor School immediately if there is any change in the instructions for the administration of this medication.

1. Name of medication ______________________
2. Reason for which medication is to be given ______________________
____
3. Dosage, schedule, and method of administration ______________________
____
4. Comments ______________________
____

Parent(s) signature ______________________
____
Address ______________________
Home Phone (______ Area Code) ______________________
Business Phone (______ Area Code) ______________________
Date ______________________

(FORM TO BE KEPT WITH MEDICATION)

Physician must fill out reverse side of form when prescription medication has been ordered.

9/78

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ORANGE COUNTY OUTDOOR SCHOOL
ADMINISTRATION OF MEDICATION
PHYSICIAN'S REQUEST FOR ADMINISTRATION OF PRESCRIPTION MEDICATION

Name of School ______________________ Name of District ______________________

The Orange County Outdoor School is located at a mountainous site at Forest Home, Forest Falls, San Bernardino County, California, approximately 75 miles from Santa Ana. This site is at an altitude of 5200' and near Mill Creek Canyon. The nature of the Outdoor School program requires that all children participate in a variety of learning and social activities involving vigorous walking and hiking. Standardized, well-balanced meals are provided.

1. Name of Pupil ____
2. Address ______________________ City ______________ Birthdate ______________
3. Reason for which drug is to be given. (If allergic in nature, please specify what type of reaction, i.e., localized, generalized, mild, severe.)
   ____
   ____
   ____
   ____
4. Name of Medication ____
5. Dosage, Schedule and method of administration ____
   ____
6. Possible reactions that need to be reported to the physician ____
   ____
7. Special Instructions: ____
   ____

The Outdoor School employs an R.N. on 24 hour call. However, the above medication may be administered by medically untrained Outdoor School staff.

8. Physician's signature ____
9. Address ______________________________ Telephone ______________
10. Date of Request ____
11. Medication to be continued as above until ______________________________
    (DATE)

SCHOOL USE ONLY

Principal's Signature ______________________ Date ______________________

Nurse's Signature ______________________ Date ______________________

(FORM TO BE KEPT WITH MEDICATIONS)

Date____________________ School(s)____________________

____

CABIN LIST-PINES (69 Beds)

Cabin____
Leader____________________
(Outdoor School Staff Member)
____ 1. ____________________
____ 2. ____________________
____ 3. ____________________
____ 4. ____________________
____ 5. ____________________
____ 6. ____________________
____ 7. ____________________
____ 8. ____________________
____ 9. ____________________
____ 10. ____________________
____ 11. ____________________
____ 12. ____________________

Directions:

The largest enrollment (boys or girls) should be assigned to the side that has 69 beds.

Please fill spaces 1-12 before using additional beds.

To the left of student's name, please indicate the school he/she attends.

6 copies of each list are needed at the Outdoor School.

Complete both sides of this form.

Cabin____
Leader____________________
(Outdoor School Staff Member)
____ 1. ____________________
____ 2. ____________________
____ 3. ____________________
____ 4. ____________________
____ 5. ____________________
____ 6. ____________________
____ 7. ____________________
____ 8. ____________________
____ 9. ____________________
____ 10. ____________________
____ 11. ____________________
____ 12. ____________________

Cabin____
Leader____________________
(Outdoor School Staff Member)
____ 1. ____________________
____ 2. ____________________
____ 3. ____________________
____ 4. ____________________
____ 5. ____________________
____ 6. ____________________
____ 7. ____________________
____ 8. ____________________
____ 9. ____________________
____ 10. ____________________
____ 11. ____________________
____ 12. ____________________
____ *13. ____________________
____ *14. ____________________
____ *15. ____________________

*additional beds

Cabin____
Leader____________________
(Outdoor School Staff Member)
____ 1. ____________________
____ 2. ____________________
____ 3. ____________________
____ 4. ____________________
____ 5. ____________________
____ 6. ____________________
____ 7. ____________________
____ 8. ____________________
____ 9. ____________________
____ 10. ____________________
____ 11. ____________________
____ 12. ____________________
____ *13. ____________________
____ *14. ____________________
____ *15. ____________________

*additional beds

Cabin____
Leader____________________
(Outdoor School Staff Member)
____ 1. ____________________
____ 2. ____________________
____ 3. ____________________
____ 4. ____________________
____ 5. ____________________
____ 6. ____________________
____ 7. ____________________
____ 8. ____________________
____ 9. ____________________
____ 10. ____________________
____ 11. ____________________
____ 12. ____________________
____ *13. ____________________
____ *14. ____________________
____ *15. ____________________

*additional beds

69 Beds for children

Date____________________ School(s)____________________

____

CABIN LIST-PINES (60 Beds)

Cabin____
Leader____________________
(Outdoor School Staff Member)
____ 1. ____________________
____ 2. ____________________
____ 3. ____________________
____ 4. ____________________
____ 5. ____________________
____ 6. ____________________
____ 7. ____________________
____ 8. ____________________
____ 9. ____________________
____ 10. ____________________
____ 11. ____________________
____ 12. ____________________
____ *13. ____________________
____ *14. ____________________
____ *15. ____________________
*additional beds

Cabin____
Leader____________________
(Outdoor School Staff Member)
____ 1. ____________________
____ 2. ____________________
____ 3. ____________________
____ 4. ____________________
____ 5. ____________________
____ 6. ____________________
____ 7. ____________________
____ 8. ____________________
____ 9. ____________________
____ 10. ____________________
____ 11. ____________________
____ 12. ____________________
____ *13. ____________________
____ *14. ____________________
____ *15. ____________________
*additional beds

Cabin____
Leader____________________
(Outdoor School Staff Member)
____ 1. ____________________
____ 2. ____________________
____ 3. ____________________
____ 4. ____________________
____ 5. ____________________
____ 6. ____________________
____ 7. ____________________
____ 8. ____________________
____ 9. ____________________
____ 10. ____________________
____ 11. ____________________
____ 12. ____________________
____ *13. ____________________
____ *14. ____________________
____ *15. ____________________
*additional beds

Cabin____
Leader____________________
(Outdoor School Staff Member)
____ 1. ____________________
____ 2. ____________________
____ 3. ____________________
____ 4. ____________________
____ 5. ____________________
____ 6. ____________________
____ 7. ____________________
____ 8. ____________________
____ 9. ____________________
____ 10. ____________________
____ 11. ____________________
____ 12. ____________________
____ *13. ____________________
____ *14. ____________________
____ *15. ____________________
* additional beds

Directions:

The largest enrollment(boys or girls) should be assigned to the side that has 69 beds.

Please fill spaces 1-12 before using additional beds.

To the left of each student's name, please indicate the school he/she attends.

6 copies of each list are needed at Outdoor School.

Complete both sides of this form.

171

60 Beds for children

DATE ____________

CABIN LIST-PONDEROSA (Boys)

SCHOOLS ____________
____

Cabin ______
Leader ____________
(Outdoor School Staff Member)
______ 1. ____________
______ 2. ____________
______ 3. ____________
______ 4. ____________
______ 5. ____________
______ 6. ____________
______ 7. ____________
______ 8. ____________
______ 9. ____________
______ *10. ____________
*Rollaway bed

Cabin ______
Leader ____________
(Outdoor School Staff Member)
______ 1. ____________
______ 2. ____________
______ 3. ____________
______ 4. ____________
______ 5. ____________
______ 6. ____________
______ 7. ____________
______ 8. ____________
______ 9. ____________
______ *10. ____________
*Rollaway bed

Cabin ______
Leader ____________
(Outdoor School Staff Member)
______ 1. ____________
______ 2. ____________
______ 3. ____________
______ 4. ____________
______ 5. ____________
______ 6. ____________
______ 7. ____________
______ 8. ____________
______ 9. ____________
______ *10. ____________
*Rollaway Bed

Cabin ______
Leader ____________
(Outdoor School Staff Member)
______ 1. ____________
______ 2. ____________
______ 3. ____________
______ 4. ____________
______ 5. ____________
______ 6. ____________
______ 7. ____________
______ 8. ____________
______ 9. ____________
______ *10. ____________
*Rollaway bed

Cabin ______
Leader ____________
(Outdoor School Staff Member)
______ 1. ____________
______ 2. ____________
______ 3. ____________
______ 4. ____________
______ 5. ____________
______ 6. ____________
______ 7. ____________
______ 8. ____________
______ 9. ____________
______ *10. ____________
*Rollaway bed

Cabin ______
Leader ____________
(Outdoor School Staff Member)
______ 1. ____________
______ 2. ____________
______ 3. ____________
______ 4. ____________
______ 5. ____________
______ 6. ____________
______ 7. ____________
______ 8. ____________
______ 9. ____________
______ *10. ____________
*Rollaway bed

CABIN LIST - PONDEROSA (BOYS)

DIRECTIONS: To the left of each student's name, please indicate the school he attends.
6 copies of each Cabin List are needed at the Outdoor School
Complete both sides of this form

DATE ______________ CABIN LIST-PONDEROSA (Girls) SCHOOLS ______________

____

CABIN LIST, PONDEROSA (GIRLS)

Cabin ______
Leader ______________
(Outdoor School Staff Member)
______ 1. ______________
______ 2. ______________
______ 3. ______________
______ 4. ______________
______ 5. ______________
______ 6. ______________
______ 7. ______________
______ 8. ______________
______ 9. ______________
______ *10. ______________

Cabin ______
Leader ______________
(Outdoor School Staff Member)
______ 1. ______________
______ 2. ______________
______ 3. ______________
______ 4. ______________
______ 5. ______________
______ 6. ______________
______ 7. ______________
______ 8. ______________
______ 9. ______________
______ *10. ______________

Cabin ______
Leader ______________
(Outdoor School Staff Member)
______ 1. ______________
______ 2. ______________
______ 3. ______________
______ 4. ______________
______ 5. ______________
______ 6. ______________
______ 7. ______________
______ 8. ______________
______ 9. ______________
______ *10. ______________

Cabin ______
Leader ______________
(Outdoor School Staff Member)
______ 1. ______________
______ 2. ______________
______ 3. ______________
______ 4. ______________
______ 5. ______________
______ 6. ______________
______ 7. ______________
______ 8. ______________
______ 9. ______________
______ *10. ______________

Cabin ______
Leader ______________
(Outdoor School Staff Member)
______ 1. ______________
______ 2. ______________
______ 3. ______________
______ 4. ______________
______ 5. ______________
______ 6. ______________
______ 7. ______________
______ 8. ______________
______ 9. ______________
______ *10. ______________

Cabin ______
Leader ______________
(Outdoor School Staff Member)
______ 1. ______________
______ 2. ______________
______ 3. ______________
______ 4. ______________
______ 5. ______________
______ 6. ______________
______ 7. ______________
______ 8. ______________
______ 9. ______________
______ *10. ______________

DIRECTIONS: To the left of each student's name, please indicate the school she attends.
6 copies of each Cabin List are needed at the Outdoor School
Complete both sides of this form.

* Rollaway Bed

Date ______________ Schools ______________________

____

CABIN LIST-RANCHO (Boys) 46 Beds

Cabin 200*
Leader ______________________
(Outdoor School Staff Member)

___ 1. ______________________
___ 2. ______________________
___ 3. ______________________
___ 4. ______________________
___ 5. ______________________
___ 6. ______________________
___ 7. ______________________

*no inside bathrooms-gang showers

Cabin 201*
Leader ______________________
(Outdoor School Staff Member)

___ 1. ______________________
___ 2. ______________________
___ 3. ______________________
___ 4. ______________________
___ 5. ______________________
___ 6. ______________________
___ 7. ______________________

*no inside bathrooms-gang showers

Cabin 202-A
Leader ______________________
(Outdoor School Staff Member)

___ . ______________________
___ 2. ______________________
___ 3. ______________________
___ 4. ______________________
___ 5. ______________________
___ 6. ______________________
___ 7. ______________________
___ 8. ______________________
___ 9. ______________________
___ 10. ______________________
___ 11. ______________________
___ 12. ______________________
___ 13. ______________________
___ 14. ______________________
___ 15. ______________________
___ 16. ______________________

Cabin 202-B
Leader ______________________
(Outdoor School Staff Member)

___ . ______________________
___ 2. ______________________
___ 3. ______________________
___ 4. ______________________
___ 5. ______________________
___ 6. ______________________
___ 7. ______________________
___ 8. ______________________
___ 9. ______________________
___ 10. ______________________
___ 11. ______________________
___ 12. ______________________
___ 13. ______________________
___ 14. ______________________
___ 15. ______________________
___ 16. ______________________

DIRECTIONS: To the left of each student's name, please indicate the school he attends
6 copies of each Cabin List are needed at the Outdoor School
Complete both sides of this form

Date ____________

Schools ____________________

____

CABIN LIST-RANCHO (Girls) 44 Beds

Cabin 210

Leader ____________________

(Outdoor School Staff Member)

____ 1. ____________________

____ 2. ____________________

____ 3. ____________________

____ 4. ____________________

____ 5. ____________________

____ 6. ____________________

____ 7. ____________________

Cabin 218

Leader ____________________

(Outdoor School Staff Member)

____ 1. ____________________

____ 2. ____________________

____ 3. ____________________

____ 4. ____________________

____ 5. ____________________

____ 6. ____________________

____ 7. ____________________

Cabin 213-A

Leader ____________________

(Outdoor School Staff Member)

____ 1. ____________________

____ 2. ____________________

____ 3. ____________________

____ 4. ____________________

____ 5. ____________________

____ 6. ____________________

____ 7. ____________________

____ 8. ____________________

____ 9. ____________________

____ 10. ____________________

____ 11. ____________________

____ 12. ____________________

____ 13. ____________________

____ 14. ____________________

____ 15. ____________________

Cabin 213-B

Leader ____________________

(Outdoor School Staff Member)

____ 1. ____________________

____ 2. ____________________

____ 3. ____________________

____ 4. ____________________

____ 5. ____________________

____ 6. ____________________

____ 7. ____________________

____ 8. ____________________

____ 9. ____________________

____ 10. ____________________

____ 11. ____________________

____ 12. ____________________

____ 13. ____________________

____ 14. ____________________

____ 15. ____________________

DIRECTIONS: To the left of each student's name, please indicate the school she attends.
6 copies of each list are needed at the Outdoor School
Complete both sides of this form

PRINCIPAL'S EVALUATION

ORANGE COUNTY OUTDOOR SCHOOL PROGRAM

SCHOOL ______________________ NAME ______________________

DISTRICT ______________________ DATE ATTENDED OUTDOOR SCHOOL __________

Your responses on this form will help us evaluate and improve the Outdoor School program for the future. We appreciate your cooperation.

Please circle the appropriate number that best represents your degree of satisfaction about the following:

	VERY SATISFIED	SATISFIED	DISSATISFIED	DID NOT USE OR OBSERVE
PLEASE USE THIS KEY	3	2	1	0
1. Outdoor School Preparation:				
a. Orientation and/or Inservice Meetings	3	2	1	0
b. Inservice materials for principals	3	2	1	0
c. Effectiveness of slide/tape presenation	3	2	1	0
d. Effectivenss of the Orange County Department of Education in the administration of the Outdoor School Program	3	2	1	0
Comments: ______________________				
2. The Outdoor School Week:				
a. Trail activities	3	2	1	0
b. Evening activities	3	2	1	0
c. Physical facilities	3	2	1	0
d. Food and preparation	3	2	1	0
e. Staff/student interpersonal relationships	3	2	1	0
f. Nursing services	3	2	1	0
Comments: ______________________				
3. Reactions and comments of your parents regarding the program: Comments: ______________________	3	2	1	0
4. Reactions and comments of your students regarding the program: Comments: ______________________	3	2	1	0

	VERY SATISFIED	SATISFIED	DISSATISFIED	DID NOT USE OR OBSERVE
PLEASE USE THIS KEY	3	2	1	0

5. Reactions and observations of your staff regarding this program 3 2 1 0

Comments: ____________________________________

6. Your opinion as to whether the cost is commensurate with the value of the Outdoor School program 3 2 1 0

Comments: ____________________________________

7. Do you feel that your students experienced academic and social growth as week as an appreciation of the natural environment as a result of the week at the Outdoor School? If so, please provide some indication of their accomplishment. If not, why?

Comments: ____________________________________

8. What activities, projects, or events did you use to successfully raise funds?

9. What suggestions do you have for improving the Outdoor School program?

THANK YOU!

Please return this form with the teacher and parent evaluations as soon as possible after participation at the Outdoor School to:

Outdoor School Specialist
Orange County Department of Education
1300 S. Grand, P.O. Box 15029
Santa Ana, CA 92705

TEACHER'S EVALUATION
ORANGE COUNTY OUTDOOR SCHOOL PROGRAM

FOREST HOME

SCHOOL ______________________ NAME ______________________

DISTRICT ______________________ DATE ATTENDED OUTDOOR SCHOOL ______________

Your responses on this form will help us evaluate and improve the Outdoor School program for the future. We appreciate your cooperation.

Please circle the appropriate number that best represents your degree of satisfaction about the following:

	VERY SATISFIED	SATISFIED	DISSATISFIED	DID NOT USE OR OBSERVE
PLEASE USE THIS KEY!	3	2	1	0
1. Outdoor School preparation:				
a. Orientation an/or inservice meetings	3	2	1	0
b. Inservice materials for teachers	3	2	1	0
c. Effectiveness of slide/tape presentation	3	2	1	0
d. Effectiveness of the Orange County Departion of Education in the administration of the Outdoor School Programs	3	2	1	0

Comments: ______________________

____

2. The Outdoor School week:				
a. Accomodations for classroom teachers	3	2	1	0
b. Cabins for students	3	2	1	0
c. Food: Quality and prepartation	3	2	1	0
Quantity	3	2	1	0
d. Educational value of trail activities:				
Forest	3	2	1	0

Comments: ______________________

____

Geology:	3	2	1	0

Comments: ______________________

____

Chaparral:	3	2	1	0

Comments: ______________________

____

Riparian:	3	2	1	0

Comments: ______________________

____

Teacher's Evaluation
Orange County Outdoor School Program

PLEASE USE THIS KEY!

VERY SATISFIED	SATISFIED	DISSATISFIED	DID NOT USE OR OBSERVE
3	2	1	0

2. The Outdoor School week: (continued)

e. Evening activities 3 2 1 0

f. Staff/student interpersonal relationships:

Administrative 3 2 1 0

Medical services 3 2 1 0

Cabin leaders 3 2 1 0

g. Students sharing responsibilities 3 2 1 0

h. Social living with peers 3 2 1 0

i. On-site orientation for classroom teachers 3 2 1 0

Comments:

j. On-site evaluation periods with staff 3 2 1 0

Comments:

3. Reaction of your parents regarding the Outdoor School program: 3 2 1 0

Comments:

4. Do you feel that your students experienced academic and social growth as well as an appreciation of the natural environment as a result of the week at the Outdoor School? If so, please provide some indication of their accomplishment. If not, why?

Comments:

5. What suggestions do you have for improving the Outdoor School program?

Comments:

Please return this form and all parent evaluations to your principal as soon as possible after participation at the Outdoor School.

THANK YOU!

PARENT EVALUATION

ORANGE COUNTY OUTDOOR SCHOOL PROGRAM

SCHOOL________________________________ DISTRICT__________________________

DATE STUDENT ATTENDED OUTDOOR SCHOOL______________________________

Dear Parents:

Your child has just returned from a week at the Orange County Outdoor School; an enrichment of the normal school program. Your responses on this form will help us evaluate and improve this educational experience.

After discussing the Outdoor School week with your child, please circle the appropriate number that best represents your degree of satisfaction or impressions of the following.

	VERY SATISFIED	SATISFIED	DISSATISFIED	DID NOT PARTICIPATE
PLEASE USE THIS KEY!	3	2	1	0
1. Educational Program:	3	2	1	0
Comments:______________________________				
2. Living Accommodations:	3	2	1	0
Comments:______________________________				
3. Relationship of your child with his/her cabin leader:	3	2	1	0
Name of Cabin Leader__________________________				
Comments:______________________________				
4. Food: Quality	3	2	1	0
Quantity	3	2	1	0
Comments:______________________________				
5. Value of the program in relationship to the cost:	3	2	1	0
Comments:______________________________				
6. Please indicate how your child felt about each of the following experiences in which he/she participated:				
a. Trail Activities:				
Forest	3	2	1	0
Geology	3	2	1	0

Parent Evaluation
Orange County Outdoor School Program

VERY SATISFIED	SATISFIED	DISSATISFIED	DID NOT PARTICIPATE
3	2	1	0

PLEASE USE THIS KEY!

6. Please indicate how your child felt about each of the following experiences in which he/she participated:

a.	(continued from first page)				
	Chaparral	3	2	1	0
	Riparian	3	2	1	0
b.	Star Study	3	2	1	0
c.	Night Hike	3	2	1	0
d.	Skit Night and/or Pioneer Night	3	2	1	0
e.	Square Dancing	3	2	1	0
f.	Special Activities . . . . (i.e. Recreation, Conservation, Crafts, Free Choice)	3	2	1	0
g.	Guest Speakers (i.e. Forest Ranger)	3	2	1	0
h.	Relationship with Outdoor School Administrative Staff Members (i.e. Principal, Lead Teachers, Unit Leaders, Naturalist, Classroom Teachers)	3	2	1	0
i.	Nursing Services	3	2	1	0
j.	Sharing Responsibilities	3	2	1	0
k.	Living With Others Away From Home	3	2	1	0
l.	Environmental Awareness and/or Appreciation	3	2	1	0

7. Any additional suggestions or comments?

____

____

____

____

THANK YOU!

(Child's Name - Optional)

(Parent's Signature - Optional)

Please return this form to your child's teacher as soon as possible after participation at the Outdoor School!